Engineering News

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YORK, DECEMBER 25, 1913

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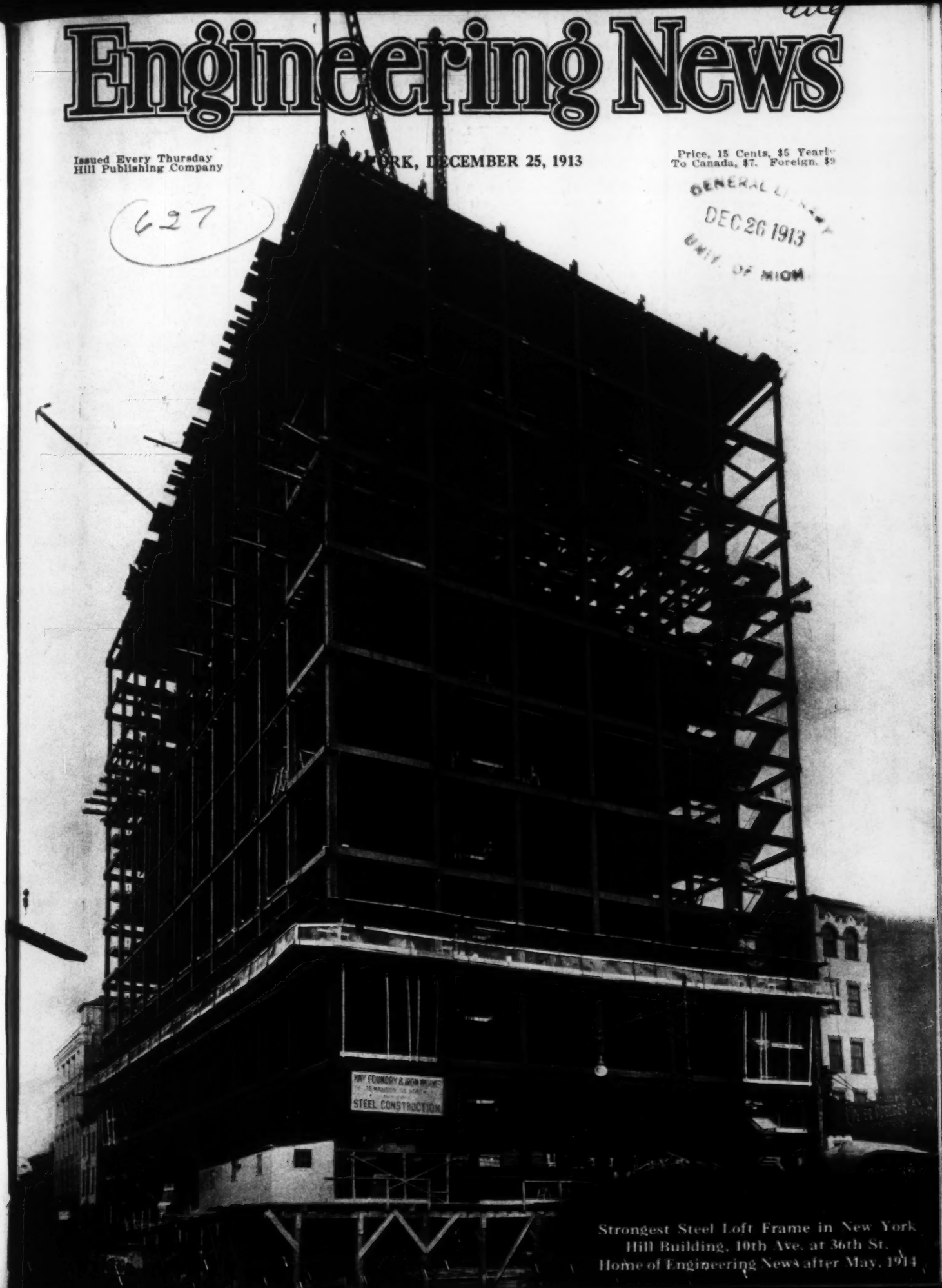
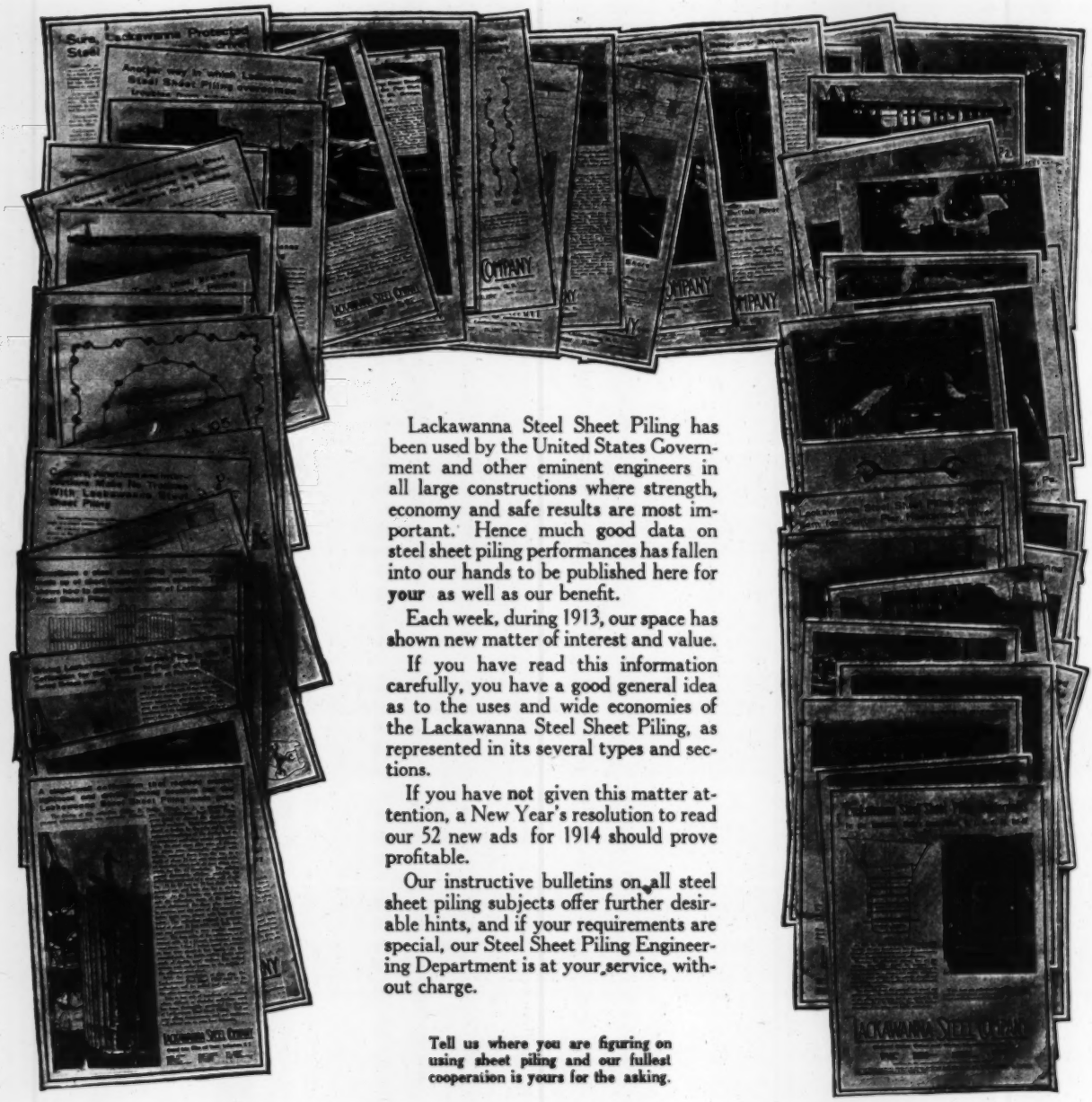
UNIV. OF MICH



Strongest Steel Loft Frame in New York
Hill Building, 10th Ave. at 36th St.
Home of Engineering News after May, 1914

RECAPITULATION



Lackawanna Steel Sheet Piling has been used by the United States Government and other eminent engineers in all large constructions where strength, economy and safe results are most important. Hence much good data on steel sheet piling performances has fallen into our hands to be published here for **your** as well as our benefit.

Each week, during 1913, our space has shown new matter of interest and value.

If you have read this information carefully, you have a good general idea as to the uses and wide economies of the Lackawanna Steel Sheet Piling, as represented in its several types and sections.

If you have **not** given this matter attention, a New Year's resolution to read our 52 new ads for 1914 should prove profitable.

Our instructive bulletins on all steel sheet piling subjects offer further desirable hints, and if your requirements are special, our Steel Sheet Piling Engineering Department is at your service, without charge.

Tell us where you are figuring on using sheet piling and our fullest cooperation is yours for the asking.

LACKAWANNA STEEL COMPANY

General Sales Office and Works: Lackawanna, N. Y.

NEW YORK
BOSTON
PHILADELPHIA

BUFFALO
CLEVELAND
CINCINNATI

DETROIT
ST. LOUIS
ATLANTA

CHICAGO
SAN FRANCISCO

Licensees for the manufacture of Lackawanna Steel Sheet Piling:

For Great Britain and British Colonies in the Eastern Hemisphere: Cargo-Fleet Iron Co., Ltd., Middlesborough, England: For France, Italy, Spain, French Colonies and Protectorates, Italian Colonies and Spanish Colonies in the Eastern Hemisphere: Cie Des Forges and Aciéries de la Marine et d'Homécourt, Paris, France.

Engineering News

CHARLES WHITING BAKER, *Editor*

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VOLUME 70 DECEMBER 25, 1913 NUMBER 26

CONTENTS

WITH PRINCIPAL ARTICLES SUMMARIZED

*Illustrated Article

*OFFICE BUILDING OF THE CONSOLIDATED GAS CO., NEW YORK CITY: *Page* 1275

Description of a 19-story office building having 10 acres of floor surface; new building around and over an existing 12-story structure; novelties in framing; erection difficulties encountered in placing foundations for columns of new building alongside those of the older building; entire construction work carried out in such a way as to leave the old building in use and to gradually transfer the offices to new building; details of girder-and-hanger construction; column footings, etc. 5000 w. 14 ill. ENGINEERING NEWS, Dec. 25, 1913.

*AUSTRALIAN WATER METER FOR IRRIGATION SUPPLIES: *Page* 1283

Description of a simple wheel meter devised by J. S. Dethridge, of Melbourne, 2000 of which are now in use in Australia, for measuring water flowing in ditches. 500 w. 2 ill. ENGINEERING NEWS, Dec. 25, 1913.

*NEW BIG BEAR VALLEY DAM; A CONCRETE DAM OF THE MULTIPLE-ARCH TYPE: *Page* 1284

Short description of Big Bear Valley and the famous old arch dam built in 1884; studies for new dam; design of new dam; multiple-arch dam composed of a number of concrete buttresses, supporting a water-resisting deck of thin concrete arches sprung between the buttresses; construction methods and construction plant; cost data on both new and old dam. 4000 w. 7 ill. John S. Eastwood. ENGINEERING NEWS, Dec. 25, 1913.

*APPLICATION OF THE FLOW-SUMMATION CURVE TO PROBLEMS OF STREAM REGULATION AND STORAGE: *Page* 1290

Describes method of solving problems in hydro-electric work on the storage and regulation of stream flow; elements of curve explained and its use demonstrated. 1000 w. 1 ill. E. Clinton Jansen. ENGINEERING NEWS, Dec. 25, 1913.

HYPOCHLORITE DISINFECTION OF SEWAGE AT PROVIDENCE, R. I.: *Page* 1292

Summary of work of sewage-disposal plant, originally built and operated for chemical precipitation, now being operated as plain sedimentation tanks, with hypochlorite disinfection; advance copy of report of City Engineer. Otis F. Clapp. 1000 w. ENGINEERING NEWS, Dec. 25, 1913.

*REPORT ON FLOOD PROTECTION FOR TROY, OHIO: *Page* 1292

Abstract of the report on possible flood-protection work at Troy, by the Morgan Engineering Co., of Memphis, Tenn.; deals largely with the protection of westerly low area where 16 lives were lost in the recent floods; report notable because it shows that the city can be protected against floods equal to that of last March at a remarkably low cost—not far above $50,000. ENGINEERING NEWS, Dec. 25, 1913.

*TWO LARGE CONCRETE ARCHES ON A SWISS MOUNTAIN RAILWAY: *Page* 1294

Describes two remarkable reinforced-concrete arch bridges which rank among the three or four largest hitherto built; carry a narrow-gage electric railway between Chur and Arosa, in Switzerland, which is a notable example of the bold and elaborate character of construction required in mountain railway work. 1000 w. 2 ill. ENGINEERING NEWS, Dec. 25, 1913.

WHY "SAFETY FIRST" IS SOUND ECONOMY: *Page* 1295

Discussion by a New York City lawyer of damages which may result from a failure to maintain machinery in a proper condition; examples of actual experiences where penny wise and pound foolish seems to have characterized the managers of construction works. 1500 w. Alexander Haring. ENGINEERING NEWS, Dec. 25, 1913.

SIEVE TEST FOR CEMENT THAT INSURES UNIFORMITY IN FINENESS: *Page* 1296

Describes testing methods and gives comparison of results obtained in cement-testing laboratory of the engineering department of the Chicago, Milwaukee & St. Paul Ry., and discusses the failure of cement testers to obtain uniform results by any means now employed. 2000 w. G. J. Griesenauer. ENGINEERING NEWS, Dec. 25, 1913.

FIELD AND OFFICE: *Page* 1298

*Erection Work on a Heavy Printing House 1298
*Notes on the Construction of a Large Earth Dam in Somerset, Vt. 1300
*Excavating with Large Scrapers. A. B. McDaniel 1302
*Replacing a Timber Howe Truss with a Long-Span Plate-Girder 1303
*Railing with Subsurface Curb for Shoulders of Road Embankments. Roland Watts 1304
Economies on Small Rock-Drilling Jobs 1305
Protecting Plate-Glass Windows against Blasting Operations 1305
Collection and Use of Construction Cost Data 1305
*Orgaization for Track-Elevation Work 1307
NOTES 1308

*OPERATING-CONTROL SYSTEM OF THE PANAMA CANAL LOCKS: *Page* 1322

Description of centralized control of locking operations; notes on construction and operation of switchboard, motor controls, indicators and interlocking. 3000 w. 12 ill. ENGINEERING NEWS, Dec. 25, 1913.

*NOTES ON THE CONSTRUCTION OF THE ST. LOUIS FILTERS: *Page* 1328

Brief description of preliminary construction work with cost data. 1000 w. 3 ill. Edward E. Wall. ENGINEERING NEWS, Dec. 25, 1913.

EDITORIAL: *Page* 1311
LETTERS: *Page* 1314
ENGINEERING NEWS OF THE WEEK: *Page* 1332
PERSONALS: *Page* 1333
ENGINEERING SOCIETIES: *Page* 1334
CONSTRUCTION NEWS: *Page* 409
CONTRACTS TO BE LET: *Page* 33
WANT ADVERTISEMENTS: *Page* 37
ADVERTISING INDEX: *Page* 80

CIRCULATION OF THIS NUMBER OF ENGINEERING NEWS 20,500

None sent free regularly, no returns from news companies, no back numbers

What The Buyer Needs To Know

Number Fifty-Two

With this number ENGINEERING NEWS concludes its first year of advertising talks.

We've given you 51 pages of the Good Stuff in some form or other but always with the idea of interesting you in the advertising.

This page is worth real money to us, and we could get the price of preferred position for it, but we are convinced that it is worth more to us, to our advertisers and to you when used this way.

It is true that the advertising pages of the News are interesting, informative and valuable to subscribers but it is well to empahsize that fact very often. Humans are so constituted that you have to remind them continually that the good thing is on their front doorstep, and not on the next street.

The aim of the publisher is always to make these advertising columns more useful to subscribers.

There is practically no "standing" copy in the paper. The advertisers realize that variety is the magnet of interest.

There is no gross exaggeration in the copy—that exaggeration which had done so much to sap faith in advertised goods. The Engineering News Code does not permit its use and, truth to tell, it isn't submitted by advertisers once in a blue moon.

All of the advertisements are strictly in line with the paper's field. If the News appeals to a man editorially, it will appeal advertisingly.

One purpose of advertising in ENGINEERING NEWS is to save your time and the time of the advertiser's salesman by putting before you crisply the "reasons why" that can be told here more quickly and easily than they can be told by word of mouth.

While you are casting off some 1913 habits, form the good one of regularly reading the advertising pages of this, your paper.

Raymond Concrete Piles Being Placed

We cordially invite all Engineers and Architects to visit the site of the job shown here. It's the foundation for the proposed warehouse for the Robert Gair Co., at Plymouth and Main Sts., Brooklyn. William Higginson, Architect.

The building will be supported on 1500 Standard Raymond Concrete Piles approximately 30 feet long each. It will be 16 stories in height—the tallest reinforced concrete building in the world.

This is our second contract from the owner, the unfinished building to the left also standing on Raymond Concrete Piles.

Our Invitation to You to Visit this Site. Why not spend the time to go to see the job? Seeing is believing, you know. Talk to our superintendent and let him explain our process to you. New York City Engineers and Architects can certainly spare the time to run across the bridge. So should others not to handily situated. The job will be in progress until about Jan. 8th. **Go see it.**

Raymond Concrete Pile Company

New York **Chicago**

Branch Offices
in all Principal Cities
Raymond Concrete Pile Co. of Canada, Ltd., Montreal, Can.

A form for every pile~ A pile for every purpose

Nine Stories Where Eight Were

The elimination in fireproof construction of beams and girders means a marked saving in the height of each floor, about 1½ feet per floor or the height of a story in every eight. The flat ceiling, besides, gives a straight-away run for piping, shafting and belting.

CORR-PLATE-FLOORS

CORR BARS

CORR UNITS

CORR MESH

CORR TILE

Dodge Bros. Warehouse Detroit, Mich.

Smith, Hinchman & Grylls—Architects Detroit, Mich.

CORR-CONSTRUCTION METHOD

The CORR-PLATE FLOOR is a "plate" floor and designed as such. We do not calculate it as a combination of beams and then build it as a plate. There is no more difficult problem in engineering than the calculation of the stresses in a flat plate supported on points. It was only after months of laboratory experimentation on rubber plates, followed by numerous tests of actual floors in buildings, where stresses in the materials were measured direct, that our Research Department was enabled to master the problem.

These floors, designed as we design them—reinforced with *Corrugated Bars*, the world's standard reinforcement—give, we feel safe in saying, the highest type of flat slab construction known to the art today.

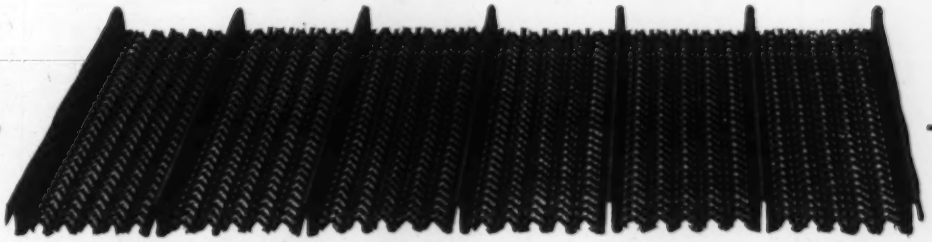
There are but two Layers of Reinforcement over the Column

This is not only an advantage in economy of design, but greatly simplifies and reduces the cost of construction. We have special CORR-CONSTRUCTION methods for other kinds of structures—Corr-Mesh, Corr-Bars, Corr-Bar-Units, Corr-Bar-O, etc.

Corrugated Bar Company, 405 Mutual Life Building, Buffalo, N. Y.

New York Boston Chicago St. Louis

(Specifications and methods shown on pages 270-281, Sweet's Catalogue, 1913)

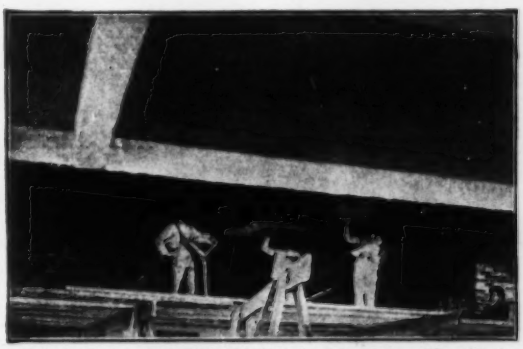


HY-RIB No Steel Channels or Wiring in Partitions and Ceilings HY-RIB

Partitions built of HY-RIB save space and are easily and quickly erected. HY-RIB combines both lath and studs. Merely fasten at floor and ceiling and plaster both sides.

In Ceilings HY-RIB does away with the small stiffening channels required with metal lath, saving expensive wiring. HY-RIB Ceilings are easy to plaster and do not crack or streak.

HY-RIB Partition (no studs required). Note grounds for baseboard and chair-rail.



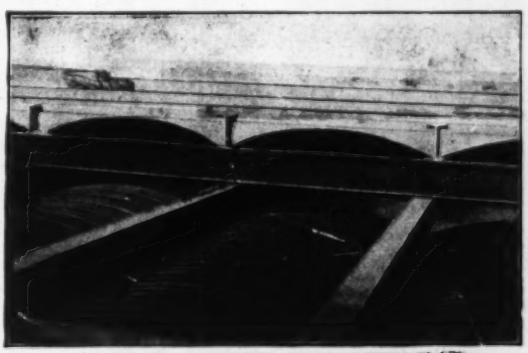
HY-RIB Ceilings, TULLER HOTEL, Detroit, Mich. (No stiffening channels or wiring.)

Concrete Floors, Roofs and Walls Built of HY-RIB Without Forms

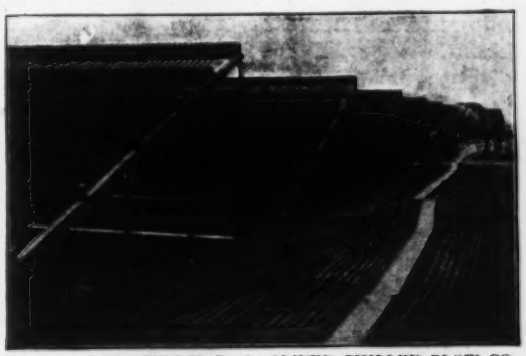
For flat slabs or arches HY-RIB provides in itself the forms and the reinforcement for the concrete. Merely set HY-RIB in place and pour on concrete.

HY-RIB Concrete Roofs are light in weight, save on supports and are built without use of forms. Simple and rapid in erection.

HY-RIB Concrete Walls cost only half as much as brick, occupy less space and are built without use of studs or forms.

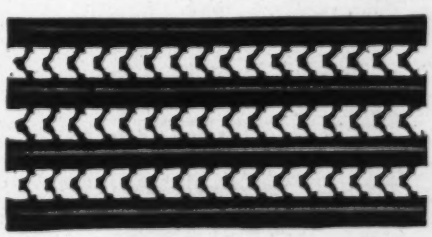


Arched HY-RIB Floors, NORTH ADAMS POWER CO., Boston, Mass. (No forms necessary.)



Flat and Sloping HY-RIB Roofs, OLIVER CHILLED PLOW CO., Hamilton, Ont. (Built without forms.)

Seven-Rib HY-RIB (illustrated above) is most useful and economical for all general purposes. Deep-Rib HY-RIB is required for heavy loads and long spans. Three-Rib HY-RIB affords maximum economy in Partitions and Sidings.



Beaded Plate Rib Lath

RIB LATH is exceptionally stiff and rigid because of beaded ribs that span between studs. Provides a perfect clinch for the plaster. Saves time, labor and material in erection. Furnished in three types and nine different weights. Also Detroit Diamond Lath, Rib Studs for Hollow Partitions and Corner Beads for protection of plaster corners.

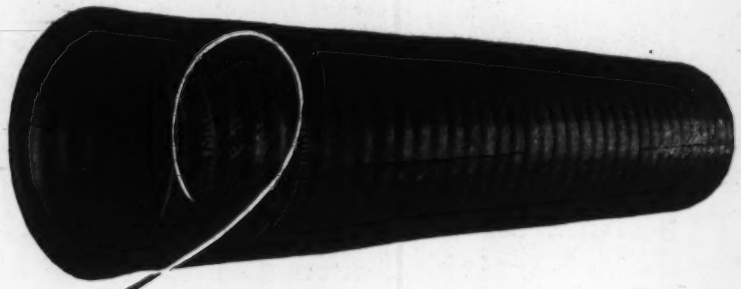
VALUABLE HAND BOOKS, containing details, specifications, tables, illustrations, etc., furnished FREE to those interested in building.

TRUSSED CONCRETE STEEL CO.

612 Trussed Concrete Building, Detroit, Michigan

Reinforced Concrete, Hy-Rib and Lath, Steel Sash, Waterproofing, Finishes, Building Specialties.

KAHN Building Products



Be Sure It Bears This Trade Mark

It Means 99.84% Pure Iron

We have some literature on the subject of extreme interest to every engineer and road builder.

Write to the manufacturer nearest you.

The purest iron gives the longest service because it is most nearly proof against corrosion. Therefore it is important that you get AMERICAN INGOT IRON which is guaranteed 99.84% pure. This takes into account **all foreign substances.** The U. S. Government, steam and electric railroads and other judicious buyers are using American Ingot Iron Corrugated Culverts right along. For particulars and prices send to the nearest manufacturer.

American Ingot Iron Corrugated Culverts, (Full Circle and Segmental) Plates, Sheets, Roofing and Formed Products

Arkansas, Little Rock
Dixie Culvert & Metal Co.

California, Los Angeles
California Corrugated Culvert Co.

California, West Berkeley
California Corrugated Culvert Co.

Colorado, Colorado Springs
Colorado Ingot Iron Pipe & Flume Co.

Delaware, Clayton
Delaware Metal Culvert Co.

Florida, Jacksonville
Dixie Culvert & Metal Co.

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Dixie Culvert & Metal Co.

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Indiana, Crawfordsville
W. Q. O'Neall Co.

Indiana, Princeton
W. Q. O'Neall Co.

IOWA, Des Moines,
Iowa Pure Iron Culvert Co.

Iowa, Independence
Independence Corrugated Culvert Co.

Kansas, Topeka
The Road Supply & Metal Co.

Kentucky, Buechel
Kentucky Culvert Co.

Louisiana, New Orleans
Dixie Culvert & Metal Co.

Maryland, Havre de Grace
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Massachusetts, Palmer
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Michigan, Bark River
Bark River Bridge & Culvert Co.

Michigan, Lansing
Michigan Bridge & Pipe Co.

Minnesota, Minneapolis
Lyle Corrugated Culvert Co.

Minnesota, Lyle
Lyle Corrugated Culvert Co.

Missouri, Moberly
Corrugated Culvert Co.

Montana, Missoula
Montana Culvert Co.

Nebraska, Lincoln
Lee-Arnett Co.

Nebraska, Wahoo
Nebraska Culvert & Mfg. Co.

Nevada, Reno
Nevada Metal Mfg. Co.

New Hampshire, Nashua
North-East Metal Culvert Co.

New Jersey, Flemington
Pennsylvania Metal Culvert Co.

New York, Auburn
Pennsylvania Metal Culvert Co.

North Carolina, Greensboro
Dixie Culvert & Metal Co.

North Dakota, Wahpeton
Northwestern Sheet & Iron Works

Ohio, Middletown
American Rolling Mill Co.
Ohio Corrugated Culvert Co.

Oklahoma, Shawnee
Dixie Culvert & Metal Co.

Oregon, Portland
Coast Culvert & Flume Co.

Pennsylvania, Warren
Pennsylvania Metal Culvert Co.

South Dakota, Sioux Falls
Sioux Falls Metal Culvert Co.

Tennessee, Nashville
Tennessee Metal Culvert Co.

Texas, Dallas
Atlas Metal Works

Texas, El Paso
Western Metal Mfg. Co.

Texas, Houston
Lone Star Culvert Co.

Utah, Woods Cross
Utah Culvert Co.

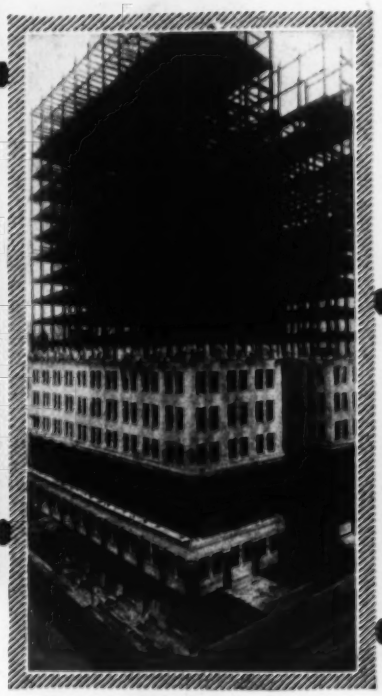
Virginia, Roanoke
Virginia Metal & Culvert Co.

Washington, Spokane
Spokane Cor. Culvert & Tank Co.

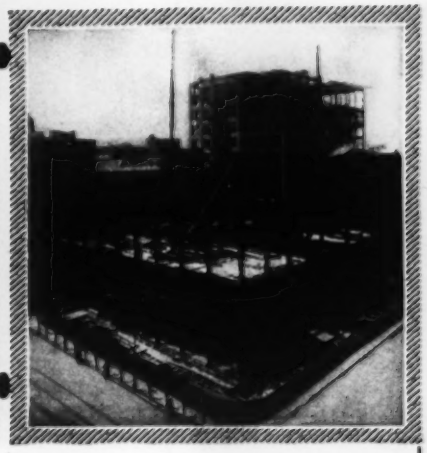
Wisconsin, Eau Claire
Bark River Bridge & Culvert Co.

Wisconsin, Madison
Wisconsin Culvert Co.

Another forceful example of our achievements in fireproofing operations.



DIME SAVINGS BANK BUILDING
DETROIT, MICH.



Architects:
D. H. BURNHAM & CO.
Chicago

Three stages in the construction of the Dime Savings Bank Building, Detroit, Mich.

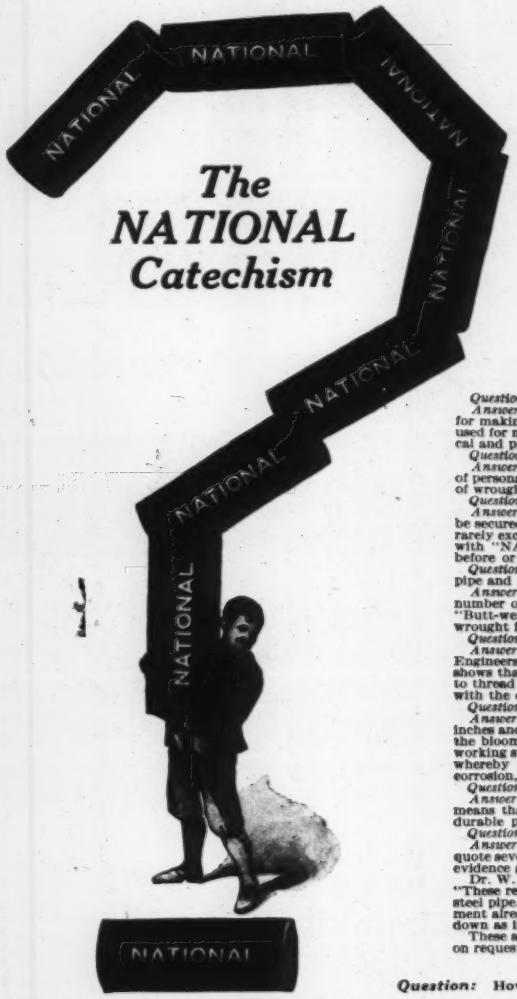
This building was FIREPROOFED by the materials and methods of this Company. The operation is typical both of the universal nature of the structures fireproofed by us and of the wide territorial scope of our activities.

NATIONAL·FIRE·PROOFING·COMPANY

Organized 1889

Pittsburgh, Pennsylvania

Offices in all Principal Cities



Some Facts About "NATIONAL" Pipe

Question: What is "NATIONAL" pipe?

Answer: It is welded pipe made by National Tube Company in sizes ¼ to 30 inches, of standard dimensions as indicated in regular lists issued by this company.

Question: What are its peculiar advantages?

Answer: "NATIONAL" pipe is made at the works of National Tube Company, where all processes, from the ore to finished product, are directly under the control of one organization and management.

Question: Of what practical advantage is this with relation to the quality of the finished product?

Answer: Simply this: From the point of view of the manufacturer, the one great essential in the material for making pipe is uniformity. National Tube Company makes but one type of steel which is intended to be used for making pipe; thus, by devoting all the attention in steel making to one type of steel, remarkable chemical and physical uniformity is obtained, which is reflected in the finished product—"NATIONAL" PIPE.

Question: Is "NATIONAL" pipe more uniform than wrought iron pipe?

Answer: Yes; for owing to the irregularity in pig iron, the small quantity made in one heat and large amount of personal attention and skill required of the puddler, it is not possible to obtain the uniformity in manufacture of wrought iron pipe that is obtained in making "NATIONAL" PIPE.

Question: How about the comparative physical properties of wrought iron and "NATIONAL" PIPE?

Answer: Wrought Iron Pipe gives but 4 to 16 per cent. elongation in 8 inches, whereas 18 to 24 per cent. will be secured from "NATIONAL" pipe steel. The tensile strength of wrought iron taken transversely to rolling rarely exceeds 36,000 pounds per inch, while about 58,000 pounds per square inch is obtained in either direction with "NATIONAL" pipe steel. "NATIONAL" pipe steel will bend through 180 degrees without fracture before or after quenching.

Question: The bursting strength is an important feature; how do the bursting strengths of wrought iron pipe and "NATIONAL" pipe compare?

Answer: Professor R. T. Stewart, Dean of the College of Engineering, University of Pittsburgh, made a number of experiments, and in a paper read before the American Society Mechanical Engineers, found that "Butt-welded wrought iron pipe is 70 per cent. as strong as similar butt-welded steel pipe; and lap welded wrought iron pipe is 57 per cent. as strong as similar lap-welded steel pipe."

Question: How about threading?

Answer: Mr. T. N. Thompson, in a paper read before the American Society of Heating and Ventilating Engineers, 1906, gave the results of some very extensive experiments, which he summarizes as follows: "It shows that the power required to thread mild steel pipe with the new die is not much more than that required to thread wrought iron with the same die and much less than the power required to thread wrought iron pipe with the common die."

Question: What special improvements have been made in "NATIONAL" PIPE over ordinary steel pipe?

Answer: First the Spellerising process may be mentioned, to which all sizes of "NATIONAL" pipe (4 and 5 inches and below) are subjected. The process of Spellerising consists in treating the metal by first subjecting the bloom or billet at a proper temperature to the action of rolls having regularly shaped projections on their working surfaces; then subjecting it, while still hot, to the action of smooth-faced rolls, repeating the operations whereby the surface of the metal is worked to produce a uniform, dense texture better adapted to resist corrosion, especially in the form of pitting.

Question: Any further special advantages of "NATIONAL" PIPE?

Answer: Beginning January 1, 1913, only full standard weight "NATIONAL" pipe will be made. This means that the consumer, when he specifies "NATIONAL" PIPE, will invariably secure a heavy, uniform durable product.

Question: How about durability and corrosion?

Answer: Numerous tests have been made as to the relative corrosion of wrought iron and steel pipe, and we quote several opinions. Bradley Stoughton, in his text-book, "The Metallurgy of Iron and Steel," says: "The evidence goes to show that properly made steel corrodes no more than wrought iron."

Dr. W. H. Walker, of the Massachusetts Institute of Technology, made extensive investigations, and states: "These results again demonstrate that taken on the average there is no difference in the corrosion of iron and steel pipe. Conversations held with engineers in charge of plants during this investigation confirms the statement already made that a pipe is frequently called steel when corrosion is found to be excessive, while it is set down as iron if it rusts but little."

These are only two taken from many opinions, and we will be glad to send full literature regarding the above on request.

Question: **How would you summarize the various advantages of "NATIONAL" PIPE?** ***Answer:***

"NATIONAL" PIPE is stronger and more ductile than wrought-iron pipe:
BECAUSE—more uniform in composition.

"NATIONAL" PIPE gives a cleaner-cut and stronger thread than wrought-iron pipe:
BECAUSE—there are no "weak spots" in uniform metal.

"NATIONAL" PIPE costs less than wrought-iron pipe:
BECAUSE—the "human element" is almost entirely eliminated in manufacture and it is made in larger units quantities.

"NATIONAL" PIPE is at least as durable as wrought-iron pipe (in many instances it has been found to be *more* durable):
BECAUSE—uniform metal tends to prevent corrosion, and "NATIONAL" PIPE receives special attention in manufacture.

"NATIONAL" PIPE is made entirely in one mill from ore to finished product:
THEREFORE—is uniform in quality year after year.

"NATIONAL" PIPE is uniform in chemical and physical properties:
THEREFORE——uniformly good results are obtained in actual service.

"NATIONAL" PIPE, in sizes 4 or 5 inches and smaller, receives the Spellerizing process:
THEREFORE—has additional protection against corrosion.

"NATIONAL" PIPE is tested with internal hydrostatic pressure:
THEREFORE——is suitable for severe service.

"NATIONAL" PIPE is made only full standard weight.
"THEREFORE—no trouble can ensue from unsuitable light-weight pipe.

"NATIONAL" PIPE is marked with the word "NATIONAL."
THEREFORE—substitution of ordinary, light-weight pipe is impossible.

Ask for N.T.C. Bulletin No. 12A—this bulletin has recently been enlarged and revised and contains a summary of information about "NATIONAL" Pipe—When you read it you will keep it on file for permanent use—it's free.

MARKING

¶ To readily identify "NATIONAL" material and as protection to manufacturer and consumer alike, the practice of National Tube Company is to roll in raised letters of good size on each few feet of every length of welded pipe the name "NATIONAL" (except on the smaller butt-weld sizes, on which this is not mechanically feasible; on these smaller butt-weld sizes the name "NATIONAL" appears on the metal tag attached to each bundle of pipe).

Name Rolled in Raised Letters on National Tube Company Pipe

¶ When writing specifications or ordering tubular goods, always specify "NATIONAL" pipe, and identify as indicated.

¶ In addition, all sizes of "NATIONAL" welded pipe below four or five inches are subjected to a roll-knobbling process known as Spellerising to lessen the tendency to corrosion, especially in the form of pitting. This Spellerising process is peculiar to "NATIONAL" pipe, to which process National Tube Company has exclusive rights.

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Read This Article

In Nov. 27th Issue. Engineering News

1064 ENGINEERING NEWS Vol. 70, No. 22

Subaqueous Sewer Construction, Brooklyn, N.Y.

SYNOPSIS—This article describes and illustrates many typical details of a sewerage system constructed in fine, running sand, at from 1 to 14 ft. below ground water-level. All the sewers in the section of Coney Island in the Borough of Brooklyn, New York City, in which this work was done are built on plank platforms supported by piles driven deep enough to prevent injury to the sewers by loss of the surrounding sand when excavations are made in the vicinity. The sanitary and storm-water pipe sewers and the house connections are incased in concrete, insuring a rigid support and water-tight joints. Cost data are given at the end of the article.

The Borough of Brooklyn, New York City, covers nearly 39,000 acres, and has, according to the census of Gravesend Bay and the western entrance to Jamaica Bay. It has been famous many years as a popular shore and amusement resort, but of late years it has acquired a large permanent population. In considerable portions of this part of Brooklyn sewers are now being constructed for the first time, and the work involves much construction of a type not usually met with in sewerage systems covering large areas, in this part of the country, although somewhat similar work has been done in New Orleans, La.

The soil over this whole area consists of fine white sand, with a surface elevation but a few feet above high water in the bordering ocean and with practically no natural drainage. Because the entire coast adjacent is a sand beach used for bathing by multitudes of the city's

Here's something of *special* interest to every engineer and contractor who is interested in Sewer Construction.

The article appears on pages 1064 to 1070 inclusive, Engineering News, November 27, 1913—a very important and well edited article on an unusual and interesting job.

Read the article, and note the application of **Wemlinger Steel Sheet-Piling,** as illustrated on page 1067.

Then ask for the Wemlinger Book. It goes fully into the merits of Steel Sheet-Piling and shows many installations of unusual interest.

Write.

Wemlinger Steel Piling Company

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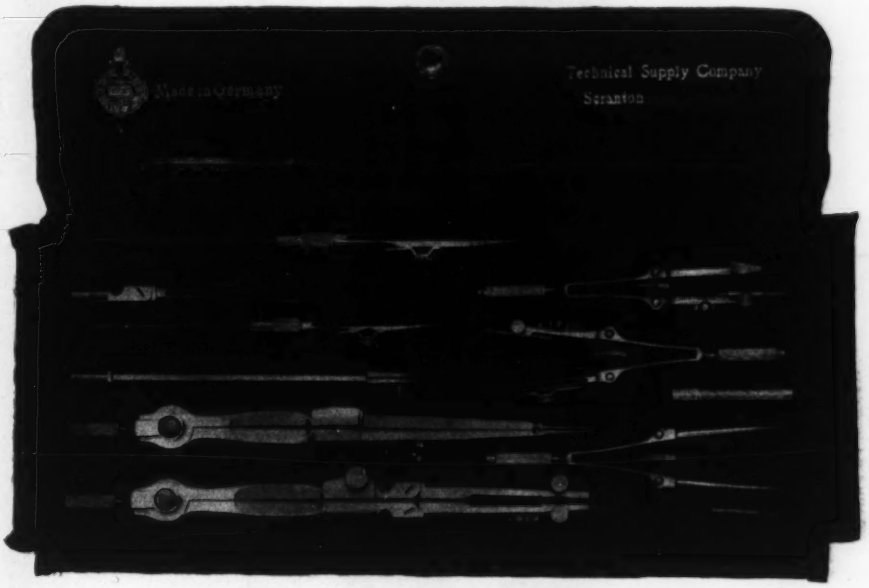

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This rock has just the proportions for a perfect Portland Cement.

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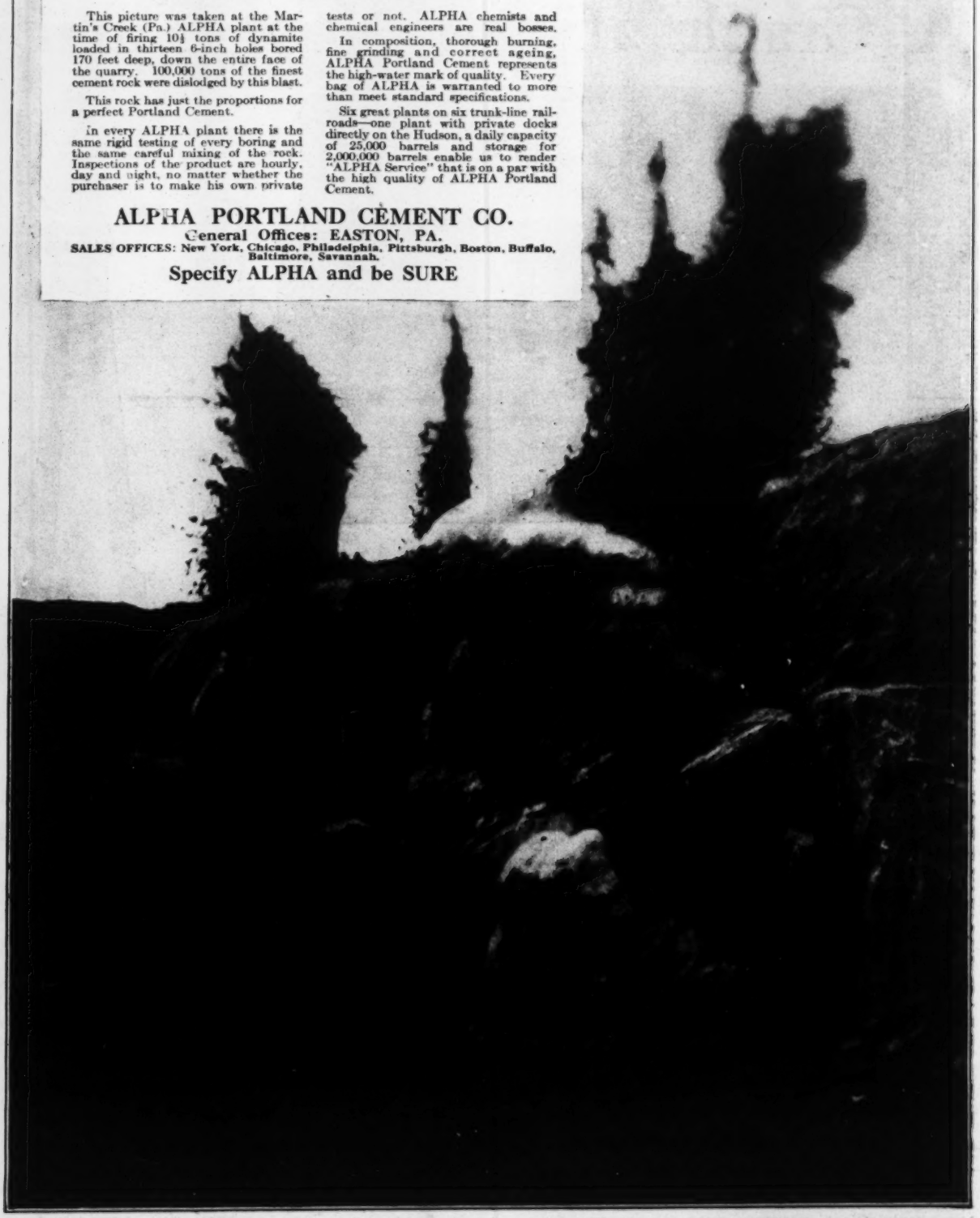
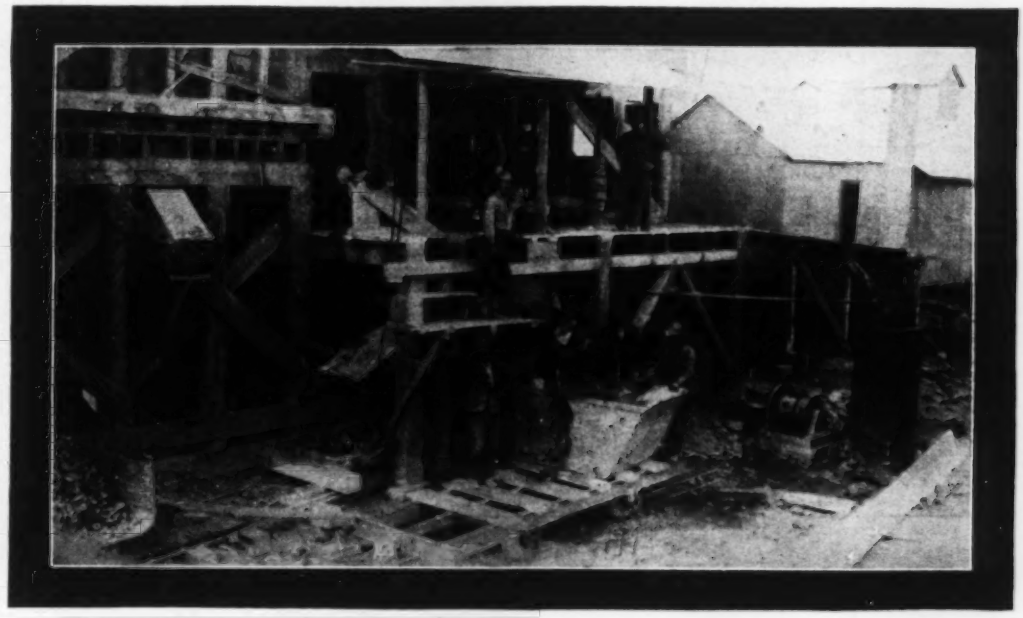




Another

Ransome

on Government Work

About the Plant

Location—Strawberry Dam, near Thistle, Utah.

Rock and sand bins located above the mixer, and discharged through measuring boxes, by gravity, directly into the mixer. Mixer operated by induction motor.

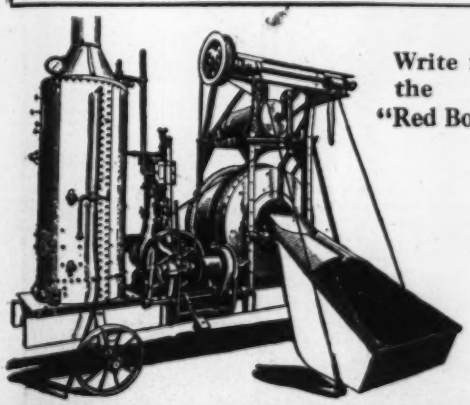
Concrete hauled in 2 cu. yd. bucket on tram for 30 feet and then distributed by cableway.

Concrete mixed in 1-yard batches, 2 or 2½ sacks of cement to the batch.

Total output 3,000 cubic yards, used mainly in concrete corewall and lining of sluice tunnel.

Organization—One man wheeling cement from cement shed to mixer; two men operating mixer; two men handling bucket at cableway. Total—five men.

J. L. Lytle, Project Engineer; J. C. Whitney, Supt. of Construction.



Write for the "Red Book"

The layout of the concrete work at the Strawberry Dam of the Strawberry Valley Project, U. S. Reclamation Service, imposed upon the Ransome mixing plant, shown in above illustration, conditions which made rapid mixing an impossibility.

The mixer discharged into a 2 cu. yard bucket which was carried about 30 feet on a gravity-operated tram and then conveyed to any desired point by a cableway.

"Speed of mixing was limited by ability of cableway to handle mixed concrete," writes one of the U. S. Engineers on the work; nevertheless, this "Ransome" has to its credit a total output of about 3,000 cubic yards for the summers of 1911-12-13.

Ransome Concrete Machinery Company

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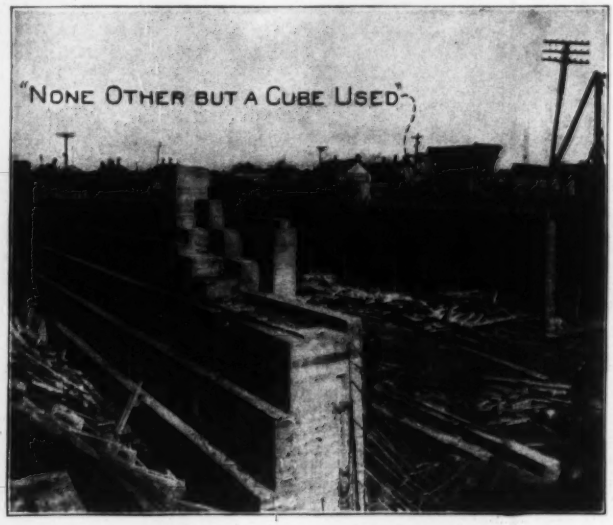

Forty Cubic Yards an Hour in Place.

A Study of the concrete in this structure explains the engineers' statement: "None other but a Cube Mixer used."

Notice the surface left by the forms—it is smooth and dense and uniform.

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Notice the fins where the concrete oozed from between the form boards—they are hard and solid.

Only a creamy mix will produce all these characteristics—a mix made liquid by over-watering will not—and a creamy mix can be produced only by thoroughness of mixing.

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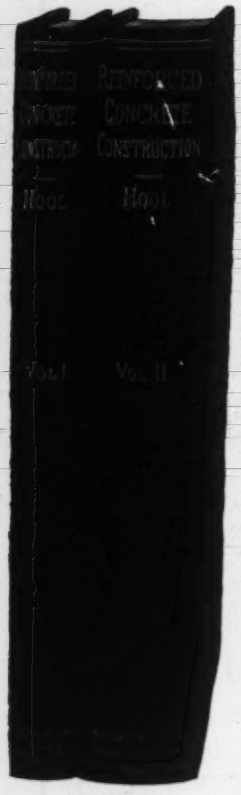

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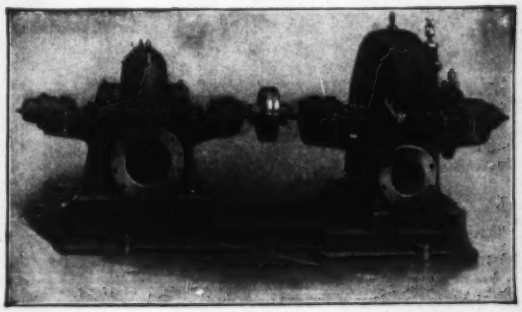

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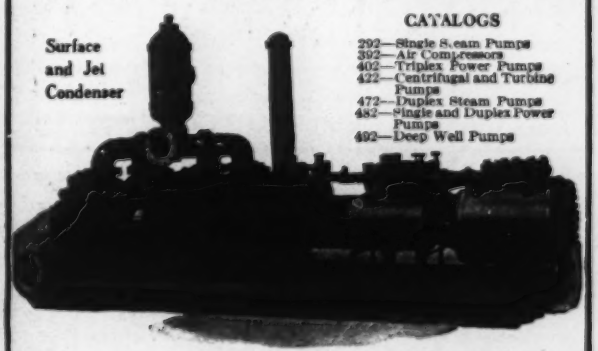

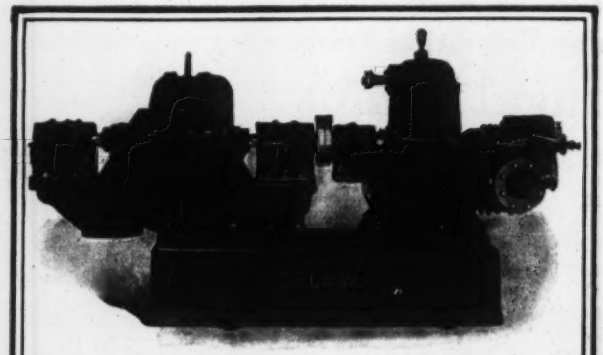

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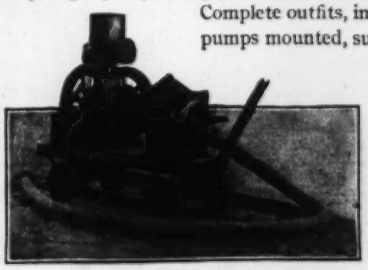

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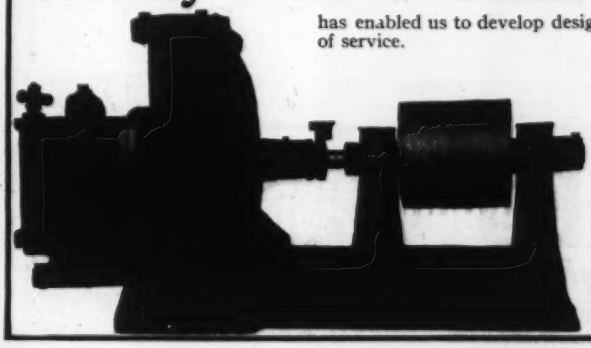

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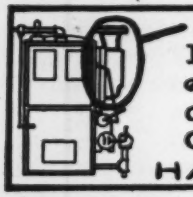

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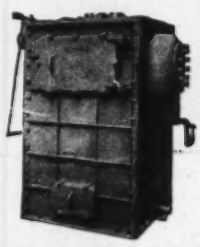

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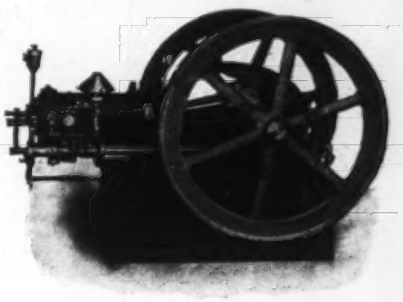

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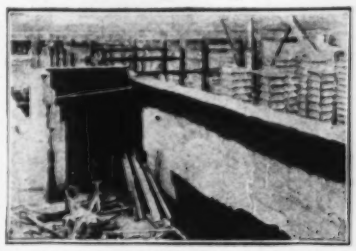

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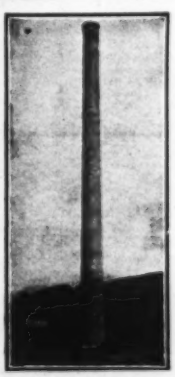

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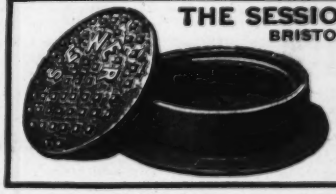

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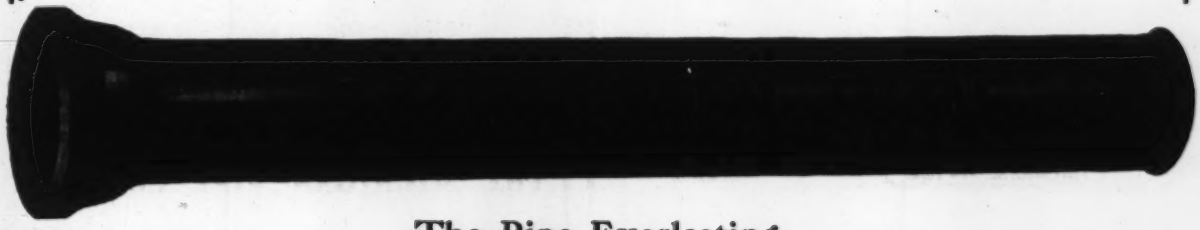

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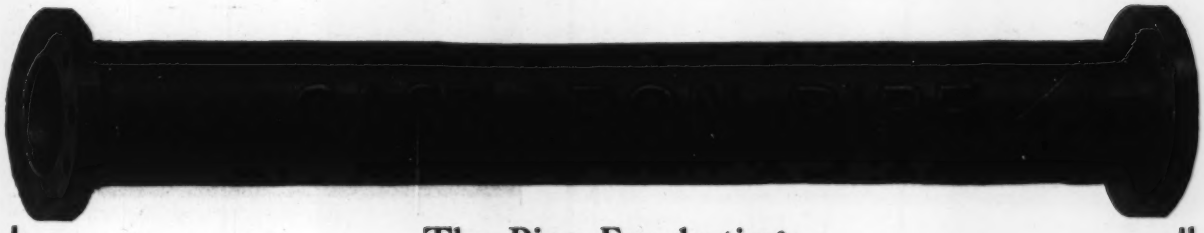

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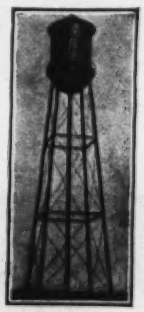

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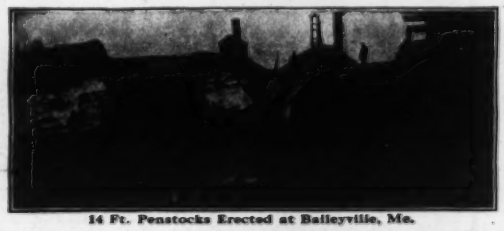

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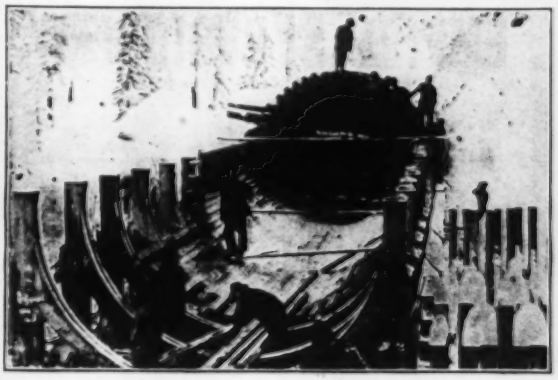

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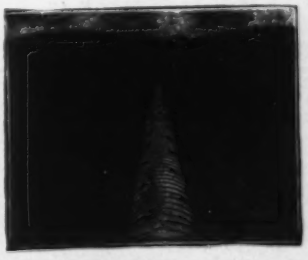

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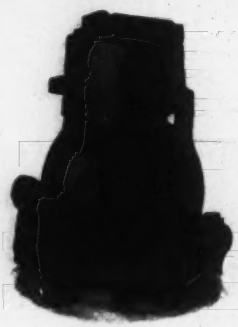

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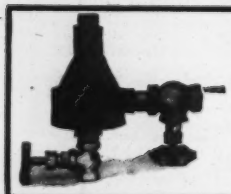

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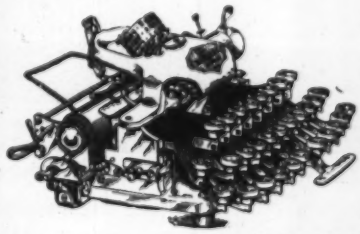

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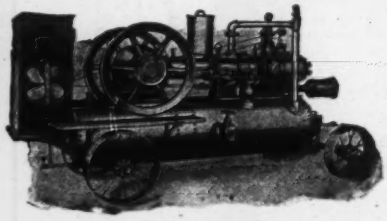

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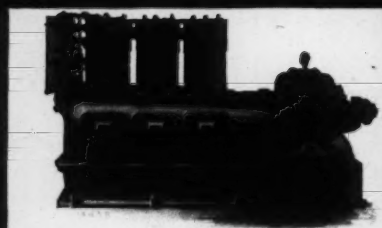

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prove themselves better than others in point of long service and in cubic-yard-removal results.

Which doesn't always mean most for the money in the beginning, but always DOES mean it in the end, and in Service.

Ask for testimonials.

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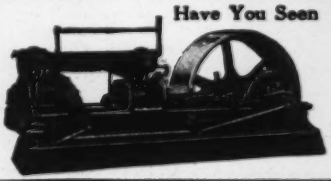

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Sullivan "WJ-3" ANGLE COMPOUND Compressors

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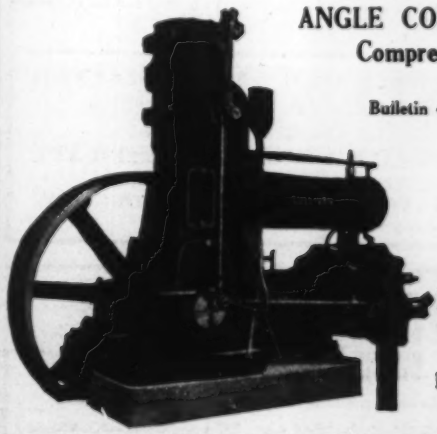

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is the finest Rock Asphalte obtainable. Mined at Canton of Neuchatel, Switzerland. When made into flooring it has the enduring qualities of adamant and is **absolutely dust-proof.** The test of time and service proves it immune against fire, moisture, weight, wear and **disintegration. It is sanitary;** acid, water, alkali, vermin and **fire-proof.**

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For Protecting Edges of Concrete Curbs, Steps, Columns, Etc.
IT HAS A RECORD OF FOURTEEN YEARS' USE WITHOUT A FAILURE
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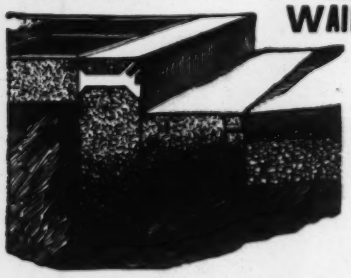

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Give this "the Best Floor on Any Bridge over the Mississippi River."

The Keokuk and Hamilton Bridge at Keokuk, Iowa.

THE SUPERINTENDENT of this bridge, Mr. J. H. Cole, in a highly complimentary letter says: "Automobile drivers tell us it is the best floor on any bridge over the Mississippi River. After six months' use, the blocks seem as perfect as the day they were put down; the heaviest loads carried by narrow wagon tires making no impression."

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THE PECULIAR shape of the Hex Blocks allows for automatic expansion between the blocks themselves, so there never can be any destructive push against the bridge timbers, as would be the case with blocks having great tangential expansion.

FOR THE reasons given, buckling need not be feared under any circumstances. A bridge in Warren County, Ohio, laid with Hex Blocks was recently under five feet of water for twenty-four hours, but the floor did not heave.

AN EQUALLY severe test was given to the Keokuk Bridge by the long spell of hot weather last summer. With a temperature exceeding 100 for many continuous days, not one sign of bulging could be seen.

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Easily read and thoroughly practical. The lessons it contains can be applied to any business.

CONSTRUCTION NEWS

★ Denotes an item regarding work advertised in Engineering News. ✚ Denotes contract awarded. The names of successful contractors are set in CAPITALS.

RAILWAYS

Massachusetts—(Official)—Bids will be received until noon, Jan. 14, by the Directors of the Port of Boston, Mass., for constructing a railroad terminal yard capable of accommodating about 400 cars, on the Commonwealth Flats at South Boston and laying about 6½ miles of track. Frank W. Hodgdon is Ch. Engr.

Connecticut—New London Northern Ry. (Central Vermont Ry.)—This company is considering straightening curves along its line together with other improvements. J. M. Morrison, St. Albans, Vt., is Ch. Engr.

New York—Brooklyn Rapid Transit R.R.—The Public Service Commission has approved the plans submitted by the New York Municipal Ry. Corporation (Brooklyn Rapid Transit R.R.) for the construction of the Liberty Ave. extension of the Fulton St. elevated railroad. The Liberty Ave. extension will be built by the company at its own expense, but when completed it will become a part of the dual system, and will be operated under the terms provided in the dual-system agreements. The road will be about 2.2 miles long, and will be a three-track elevated railroad. The extension will leave the existing Fulton St. line at the dividing line between the boroughs of Brooklyn and Queens, and will run thence easterly over Liberty Ave., in the borough of Queens, to Lefferts Ave. C. L. Crabbs, Brooklyn, N. Y., is Engr. Way and Const. Bids for the above work will be received by the Chief Engineer, 85 Clinton St., Brooklyn, N. Y., until noon, Jan. 5.

Pennsylvania—Pennsylvania R.R.—This company is considering the construction of an extension to its Monongahela Division into Greene County, Penn. Alexander C. Shand, Philadelphia, Penn., is Ch. Engr.

West Virginia—Chesapeake & Ohio Ry.—This company is considering the construction of a railroad from Madison, Ky., 12 miles up Pond Fork. F. I. Cabell, Richmond, Va., is Ch. Engr.

Georgia—Elberton & Eastern R.R.—This company is considering the extension of its line from Tignall, Ga., in a southerly direction to Washington, Ga., a distance of 12.5 miles. A. W. Wilson, Elberton, is Ch. Engr.

Georgia—Georgia & Florida Ry.—This company is considering the construction of an extension from Madison, Ga., to the Gulf Coast. E. B. Eppes, Douglas, Ga., is Engr. M. W.

Georgia—Atlantic, Waycross & Northern R.R.—This company is considering the construction of an extension from Kingsland to Folkston, Ga. L. Johnson, St. Mary's, Ga., is Pres.

Florida—Memphis & Pensacola R.R.—It is reported that this company has been sold to John C. McNair and associates, of Vancouver, B. C. The new owners will complete the proposed line.

Florida—Burton-Swartz Cypress Co.—This company has had surveys made for the construction of a railroad to its mill. Capital, $1,200,000. E. G. Swartz, Jacksonville, Fla., is interested.

Illinois—Chicago, Peoria & Quincy R.R.—This company has increased its capital from $200,000 to $2,000,000. Work on its proposed line from Quincy to Peoria will commence in the spring.

Wisconsin—Minneapolis, Merrill & Marinette R.R.—This company has amended its articles of incorporation, changing the provisions to construct the line from this city northwest to Prentice, Wis., and connect with the Chicago, Milwaukee & St. Paul Ry., to construct the line northwest to Antigo, Wis., and connect with the Chicago & Northwestern Ry. John O'Day is Pres. and F. W. Kubasta, Shawano, Wis., is Secy.

Kansas—Newton, Kansas & Nebraska R.R.—This company has completed arrangements for the construction of its proposed line from Milton, Kan., to Fairfield, Neb. Michael Cassidy, Guthrie, Okla., is interested.

Colorado, Kansas & Oklahoma R.R.—This company will award contracts for the construction of its proposed railroad from Winona, Kan., west. B. L. Allen, Scott City, Kan., is Ch. Engr. Noted Oct. 23.

Nebraska—Nebraska Central Ry.—Surveys are being made for the construction of this company's proposed line from Ainsworth, Neb., north to Springview, Neb., about 30 miles long. W. A. Finney, Ainsworth, Neb., is interested. Noted Dec. 4.

Montana—Carpenter Creek Ry.—This company has filed articles of incorporation for the construction of a railroad in Musselshell County. C. M. Jacobs, Musselshell, is interested.

Arkansas—Warren, Johnsville & Saline River R.R.—This company is having surveys made for the construction of a six-mile extension. C. W. Holderbaum, Warren, Ark., is Supt. and Ch. Engr.

Texas—Nueces Valley, Rio Grande & Gulf Ry.—This company will probably award contracts in February for the construction of its proposed 25-mile railroad in Live Oak and McMullen Counties, Tex. J. W. Brooks, Belleville, Tex., is Ch. Engr.

Oklahoma—The citizens of Grove, Okla., have organized a company to construct a railroad to Copeland, a new town.

Colorado—Chicago, Burlington & Quincy R.R.—This company will start work soon on the improvement of its yards at Derby, Colo. Estimated cost, $500,000. W. L. Breckenridge, Chicago, Ill., is Engr. M. W.

E. M. Biggs Tie & Stores Co.—This company, with offices in the Chamber of Commerce Bldg., Denver, Colo., has had surveys made for the construction of a 15-mile railway from Dolores, Colo., in a northerly direction.

Utah—San Pedro, Los Angeles & Salt Lake R.R.—This company is considering the construction of a 15-mile line from Delta, Colo., into Millard County. E. G. Tilton, Los Angeles, Calif., is Ch. Engr.

Manitoba—See item under Miscellaneous: Railway Ties, Etc.—Winnipeg, Man.

✚**British Columbia**—Esquimalt & Nanaino R.R. (Canadian Pacific Ry.)—This company has awarded the contract to MOORE & PETTRICK, Victoria, B. C., for grading and trestle work on its proposed extension from the Little Jualienne River, B. C., to Courtenay, 36 miles.

Canada—Alberta, Peace River and Eastern Ry.—Financial arrangements have been completed, it is reported, for the construction of this company's proposed line from Hudson's Hope to the Pacific Ocean, via Edmonton, Alta., and Peace River crossing, with a branch line to Fort McMurray. H. H. Williams, Edmonton, Alta., is Ch. Engr.

ELECTRIC RAILWAYS

Brattleboro, N. H.—The Twin State Gas & Electric Co. contemplates the extension of its line through Esteyville. I. L. Meloon, Dover, N. H., is Pres.

Holyoke, Mass.—The Holyoke Street Ry. Co. has applied to the City Council for a franchise to extend its line to Bridge St. Louis D. Pellissier, Holyoke, is Gen. Mgr. and Pur. Agt.

Lynn, Mass.—The Bay State Street Ry. Co. is considering the construction of a railway from Lynn to Lynnfield. The company has petitioned the City Council of Lynn for a franchise for the proposed extension. B. B. Foss, Lynn, is Supt.

Albany, N. Y.—The New York State Ry. Co. has been granted permission by the Public Service Commission to construct extensions and double-track portions of its lines in the city of Albany. D. P. Falconer, Rochester, is Engr. M. W.

Birmingham, Ala.—The Birmingham Ry., Light & Power Co. will probably extend its lines in the city of Birmingham. G. H. Harris, Birmingham, is Supt. Ry. Dept.

Knoxville, Tenn.—The Maryville-Knoxville Interurban Ry. Co., Knoxville, has completed arrangements for the construction of its proposed 14-mile line from Maryville to Knoxville. K. Burger, Maryvil, is Secy.

Grand Rapids, Mich.—The Mesaba Ry. Co. is considering plans for the extension of its line to Grand Rapids. Oscar Mitchell, Duluth, Minn., is Pres.

Clarke City, Ill.—The Illinois Midland R.R. Co. has been organized to construct and operate an electric interurban railway from Clarke City to the northern line of Winnebago County. F. S. Monroe, Highland Park, Ill., is interested.

Peoria, Ill.—The Tazewell County-Illinois Traction Co. has been organized to construct an electric railway across Tazewell County. J. E. Mellick is interested.

Rochelle, Ill.—The Northern Illinois Electric Ry. Co. contemplates the extension of its line from Amboy to Rochelle. M. A. Peoples, Isabella Bldg., Chicago, is Gen. Mgr.

Superior, Wis.—The Steel Plant Traction Co. has been granted permission by the Railroad Commission to construct and operate an electric railway on Tower Ave. J. J. Wirtz is Pres.

Grinnell, Iowa—The construction of an electric railway from Grinnell to Belle Plaine is contemplated by T. L. Blank.

Caney, Kan.—The Independence, Caney & Aklahoma Ry. Co., Bartlesville, Okla., is considering the construction of an electric railway between Caney, Havana, Wayside and Independence, Kan., and Bartlesville, Okla.

Centerville (Butte post office), **Mont.**—The Butte Electric Ry. Co. is preparing plans for the extension of its double-track line from Centerville to Elm Orlu Mine. J. R. Wharton, Butte, is Gen. Mgr.

Hamilton, Mo.—See item under Light, Heat & Power.

Kingston, Mo.—Surveys have been made and preliminary arrangements are being made by David Miller and H. L. Gilbert, Kansas City, for the construction of the proposed electric interurban railway, from Kingston to Excelsior Springs. Noted Dec. 4.

Lufkin, Tex.—(Official)—P. A. McCarthy & Sons, Consult. Engrs., Lufkin, are making preliminary investigations for the construction of several electric interurban lines radiating from Lufkin.

Tyler, Tex.—The Tyler Traction Co. was chartered Dec. 13 to operate a street railway system in Tyler. The incorporators are Daniel Hewitt, T. N. Jones, Lawrence Hewitt, J. W. Fitzgerald and T. B. Butler.

Idaho Falls, Idaho—The Idaho Falls Electric Ry. Co. has asked the Public Utilities Commission for permission to construct 34 miles of interurban railway out of Idaho Falls. Noted Oct. 16.

✚Tuttle, Okla.—The Hagerman Valley & Twin Falls Traction Co. has awarded the contract to the C. R. B. WELTY CO., Oklahoma City, Okla., for the construction of the first section of its proposed line between Tuttle and Hagerman, Idaho.

Hagerman, Idaho—See item under Tuttle, Okla.

Malaga, Wash.—A 50-year franchise has been granted to H. Harris, Wenatchee, Wash., for the construction of an electric railway, 35 miles long, from Malaga to Leavenworth, Wash.

Tacoma, Wash.—The Tacoma Ry. & Power Co. will construct a line in 11th St. on the tideflats. The Council has granted the necessary franchise. G. W. Rounds, Tacoma, is Gen.-Supt.

Wenatchee, Wash.—The Commissioners of Chelan County have granted a franchise to Hyman Harris, Wenatchee, to construct and operate an electric interurban line from Malaga to Leavenworth, about 35 miles.

Dixon, Calif.—The Sacramento Valley West Side Electric Ry. Co. will construct a portion of its line through Dixon. C. L. Donohoe, Willows, Calif., is Pres.

Ferndale, Calif.—W. B. Alford and G. M. Brice Ferndale, are interested in the construction of an electric railway from Ferndale to Fernbridge to connect with the Northwestern Pacific Ry. at Fernbridge.

Fresno, Calif.—The Fresno Traction Co. is considering double-tracking its line on Tulare Ave., Fresno, from Angus St. to First St.; also the extension of its Arlington Heights line. E. A. Deverau, Fresno, is Supt.

An electric interurban railway will be constructed from Fresno to Academy, Calif., via Clovis. Contracts will be awarded soon. The line will be 24 miles long. F. S. Granger, Fresno, is interested. Noted Nov. 20.

La Mesa, Calif.—Plans are being considered for the expenditure of $60,000 for the construction of a municipal car line from La Mesa to Fairmont and East San Diego.

San Francisco, Calif.—The cost of constructing new city railway lines has been estimated by M. M. O'Shaughnessy, City Engr., at $1,281,800. This does not include the Church St. line which will cost $65,100 additional. Noted Oct. 23.

San Francisco, Calif.—See item under Miscellaneous: Rails, Joints, Etc., San Francisco.

Barrie, Ont.—The Toronto, Barrie & Orillia Electric Ry. Co. contemplates the construction of an electric railway in Barrie. This line will connect Barrie with the Canadian Pacific Ry.

Honolulu, H. T.—The Honolulu Rapid Transit & Land Co., Honolulu, will award contracts during the year 1914 for the construction of six miles of extensions in Honolulu. A. L. Castle, Honolulu, is Secy.

LIGHT, HEAT AND POWER

Burlington, Vt.—The Burlington Traction Co., Burlington, will install additional equipment and erect distribution lines to supply electricity to the town of Shelburne. C. B. Brownell is Supt.

St. Regis Falls, N. Y.—The St. Regis Falls Light & Power Co. is considering a plan to place its wires underground.

Harrison, N. J.—The Board of Trade is preparing a petition to the Town Council for the installation of a new street-lighting system on Harrison Ave., between Davis Ave. and Bridge St.

Hopewell, N. J.—The New Jersey Northern Gas Co. will install a system in Hopewell and surrounding districts. George Wilgus, formerly superintendent for the company at Lambertville, will have charge of operations, with an office at Hopewell.

✚Ellwood City, Penn.—According to press reports, the City Council has awarded the contract for furnishing the city with electricity for lighting purposes for ten years, to the HAMONY CO.

Philadelphia, Penn.—Bids will be received at the office of the Department of Health & Charities, 584 City Hall, until Dec. 26, for the construction of a power plant for the Philadelphia Institution for the Feeble Minded at Byberry. Plans and specifications are on file at the office of Philip H. Johnson, Arch., 1824 Land Title Bldg., Philadelphia.

Pittsburgh, Penn.—According to press reports, the City Council has authorized the Director of Public Service to install an ornamental street-lighting system in Grandview Ave., from Wyoming to Republic St.

Richmond, Va.—William P. Knowles, superintendent of the gas works, has applied to the Administration Board for permission to expend $42,574 for extensions and improvements to the gas plant, which will increase the capacity to 160,000 cu.ft. daily. Forestal & Robinson are Consult. Engrs.

Williamson, W. Va.—Bids will be received by the City Council until Jan. 5, for the installation and maintenance of street lights for a period of five years.

Wilmington, N. C.—The Tidewater Power Co., Wilmington, plans to erect about six miles of transmission lines, and to purchase additional apparatus. Raymond Hunt is Supt. of the electrical department.

De Ridder, La.—The De Ridder Light & Power Co. plans to build a power plant at De Ridder, to cost approximately $30,000.

Livingston, Tenn.—An ordinance has been adopted granting a franchise to the Livingston Electric Light & Power Co. to install and operate an electric-light plant in Livingston. D. B. Hayes is City Clerk.

Barbourville, Ky.—The Council is considering the installation of an electric-light plant.

Irvine, Ky.—V. M. Gaines, Irvine, is interested in the establishment of an electric-light plant in Irvine.

Mount Vernon, Ky.—The Mount Vernon Electric Light & Ice Co., recently incorporated, plans to install an electric light and ice plant. U. G. Baker is Pres.

Bellefontaine, Ohio—The proposition to issue bonds for $36,000 for the purpose of improving and extending the municipal electric-light plant is under consideration, by the City Council.

Canton, Ohio—It is reported that the installation of a municipal electric-light plant is under consideration.

Cincinnati, Ohio—Bids are being received by G. W. Drach, Union Trust Bldg., Arch., and the contract will soon be awarded for the construction of a three-story power house on Clifton Ave., for the Good Samaritan Hospital.

Cleveland, Ohio—Bids will be received at the office of the Secretary to the Director of Public Service, until Dec. 30, for steam turbine driven exciter set for the municipal electric-light plant. W. J. Springborn is Dir. of Pub. Serv. W. H. Kirby, Secy.

Cleveland, Ohio—The Cleveland Electric Illuminating Co. has been granted permission to erect a four-story power house on Canal Road. The estimated cost is $6000.

Columbus, Ohio—H. R. Allensworth, Electrical Engineer, has submitted reports, estimating the cost of placing the overhead wires owned by the city in underground conduits in the downtown section at $25,000.

Greenville, Ohio—The Greenville Electric Light & Power Co. has been authorized by the Public Utilities Commission to increase its capital $30,000 for the purpose of erecting a transmission line and installing additional equipment. Noted Dec. 11.

Mentone, Ind.—William P. Hollands and William C. Davis, owners of the local electric-light plant, have been granted a franchise to erect transmission lines for the distribution of electricity in Mentone for a period of 10 years.

Chicago, Ill.—The Monroe Street Improvement Association has instructed H. A. Seward, electrical and construction engineer to secure frontage consents and obtain estimates of the cost of the installation of a lighting system on Monroe St.

✚Burkhardt, Wis.—The Burkhardt Milling & Electric Co. has awarded the contract to JACOBSON & ACKERMAN, Grand Rapids, Wis., and Minneapolis, Minn., for a hydraulic power plant, consisting of a dam 60 ft. high, a pipe line and power house at Willow River Falls.

Fort Atkinson, Wis.—It is reported that J. T. Smith, Newton, Iowa, is investigating the advisability of constructing a high-pressure tank at Fort Atkinson and extending the pipe line to Jefferson, Wis.

Greenbush, Wis.—According to press reports, Otto Herring contemplates the installation of an electric-light plant and the construction of a dam.

La Crosse, Wis.—A committee has been appointed by Mayor O. J. Sorensen, to investigate the feasibility of installing a municipal electric-light plant.

Wauwatosa, Wis.—Bids will be received by Louis G. Widule, County Clerk, Milwaukee, Wis., until Jan. 15, for the installation of a heating, ventilating and electric-light and power systems in the Milwaukee County Tuberculosis Sanatorium at Wauwatosa. R. Messmer & Bro., Majestic Bldg., are Archs.

West Bend, Wis.—It is reported that the West Bend Heating & Lighting Co., West Bend, plans to install some additional equipment. G. W. Kuehltham is Pres.

Shelby, Iowa—The Avoca Electric Light & Power Co., Avoca, has been granted a 20-year franchise to furnish electricity in Shelby. W. A. Torrey, Avoca, is Engr.-in-charge.

Kerkhoven, Minn.—It is reported that the Kerkhoven Roller Mill Co. will install an electric-light and power plant and will furnish electricity for lamps to the city.

Lyle, Minn.—According to press reports, N. T. Fontun, manager of the local electric-light plant, plans to erect a new power house and to purchase some additional machinery.

Severance, Kan.—Plans are being prepared for the construction of an electric-light plant. C. I. Stocking, Hiawatha, is the Engr.

Friend, Neb.—Plans are being prepared for the construction of additions to the power house of the municipal electric-light plant and water-works system. L. S. Frantz is Supt.

Mead, Neb.—Bruce & Standevin, Omaha, Neb., are designing engineers for the new municipal electric-lighting plant at Mead. Noted Dec. 4.

Ord, Neb.—It is reported that plans are being prepared for the installation of an electric-light plant and for improvements to the water-works, to cost about $23,000. Bruce & Standevin, Bee Bldg., Omaha, Neb., are Engrs.

Big Stone City, S. D.—M. A. Benjamin is reported to be interested in a company which is being organized to install and operate an electric-lighting system in Big Stone City.

Fulton, Mo.—It is reported that bids will be received in January, for the completion of the new power house at the Missouri School for the Deaf. The estimated cost is $9000. Noted May 22.

Glasgow, Mo.—(Official)—Bids will be received by the city of Glasgow, until Jan. 5, for one 50-kv.a., three-phase, 2300-volt, 60-cycle generator, direct connected to a 12x12, four-valve engine. R. L. Blacet is Supt.

Hamilton, Mo.—The citizens have voted to grant a franchise to Miller & Gilbert, Kansas City, Mo., to install and operate an electric-light and power plant and an electric suburban railway and terminals.

Holland, Tex.—Plans for the installation of a municipal electric-light plant are under consideration.

Loveland, Colo.—The City has retained a consulting engineer to prepare estimates of the cost and to investigate the feasibility of installing a municipal electric-light plant.

Yuma, Colo.—The town contemplates calling a special election to vote on the proposition to issue bonds for $10,000 for the installation of a municipal electric-light plant.

Raymond, Wash.—The Willapa Electric Co. is having plans prepared for the construction of a 1000-hp. electric plant.

Alviso, Calif.—Bids will be received by the Board of Trustees, until Jan. 5, for a franchise to erect transmission lines for the distribution of electricity in the town of Alviso. S. J. Maggini is Clk.

Lakeport, Calif.—James A. Gunn and F. G. Gunn plan to extend their electric distributing system. The estimated cost is $10,000.

Longbeach, Calif.—Bids will be received by the Board of Public Works, until 2 p.m., Dec. 31, for the installation of an ornamental street-lighting system on Elm Ave., between Ocean Ave. and Broadway. Harry B. Riley is City Clerk.

Ontario, Calif—The City Council will receive bids about Jan. 1, for the installation of ornamental light posts on Euclid Ave., between A St., and the San Pedro, Los Angeles & Salt Lake R.R. tracks, and Euclid and Lemon Aves.

Redding, Calif.—The Board of Supervisors of Shasta County has granted a franchise to the Pitt Electric Power Co., to develop and distribute power in Fall River and Burney Valleys A power plant will be constructed at Burney Falls. William F. Blake is Pres. of the company.

Tulare, Calif.—The Tulare County Power Co., Tulare, has applied for permission to issue bonds for $80,000 to construct additional transmission lines in Tulare County.

Hamilton, Ont.—The City Council plans to erect a substation at Hamilton, to cost approximately $19,000. It will be two stories, of brick and steel. John Allen is Mayor.

Ottawa, Ont.—The Ottawa Electric Ry. Co., Ottawa, plans to erect a boiler and engine house, 71x90 ft., of brick.

Calgary, Alta.—The Eau Claire Lumber Co. plans to increase the output of its plant by the addition of new equipment. The estimated cost is $300,000.

BRIDGES

Charlotte, N. Y.—(Official—We are advised that bids will probably be asked early in January for the erection of a bridge over the Genesee River at Stutson St. The work will consist of changing the grades and paving the west approach on Stutson and River Sts., building a steel bridge over the tracks of the New York Central & Hudson River R.R. along the river, with a movable bridge having a clear opening of 150 ft., thence across proposed future tracks, a viaduct about 400 ft. long across the marsh, an embankment across another marsh, and grading a roadway about half a mile long. The estimated cost is about $175,000 for the entire contract, and it is planned to let all of the work to one contractor. Bids will be received by the Building Commission of Monroe County, submitted to a board of three engineers, and the contract will be awarded by vote of the Board of Supervisors of Monroe County. Noted Dec. 11.

Highlands, N. J.—It is reported that estimates will be received about Jan. 1 for the erection of a reinforced-concrete bridge over the Shrewsbury River. It will be about 600 ft. long, consisting of 52-ft. spans. John T. Simpson, Essex Bldg., Newark, N. J., is Engr.

Trenton, N. J.—Press reports state that the Pennsylvania R.R. will receive bids until Jan. 14 for the erection of a double-track steel bridge over the Delaware River, about half a mile below Trenton. It will be about 1275 ft. long, with six spans. It will be used in connection with the new low-grade freight line. The estimated cost is $2,000,000. Alexander C. Shand, Philadelphia, Penn., is Ch. Engr.

Hanover, Va.—(Official)—Bids will be received until noon, Jan. 6, by the Clerk of the Circuit Court of Hanover County for the erection of a bridge over Ellerson's Mill Stream, about three miles from Ellerson. It will be of steel and wood, about 27 ft. long with a 12-ft. roadway. Childrey & Co., Richmond, Va., are Engrs.

Cordele, Ga.—It is reported that the Chamber of Commerce of Cordele is having plans prepared and is promoting the construction of a bridge over the Flint River on the road between Cordele and Americus to connect Crisp and Sumter Counties. The bridge will be of iron or reinforced concrete, and is estimated to cost from $15,000 to $20,000. It is said that the plans will be ready in about a month. Lewis Spencer Daniel is Secy.

Jacksonville, Fla.—The Committee on Public Works of the Board of Bond Trustees has authorized the construction of the new Duval St. Viaduct, work to be begun about Feb. 9, 1914, and completed within one year. The estimated cost is from $100,000 to $150,000 and will be borne jointly by the St. Johns Terminal Co. and the Seaboard Air Line. The viaduct, including the approaches, will be about 1400 ft. long and sufficiently wide to accommodate double tracks for the street car service, and a driveway. Noted Aug. 7.

Columbiana, Ala.—The Board of Commissioners of Shelby County is considering the erection of various steel bridges during the coming year. E. Bowdon Keystone is Pres. of Comrs.

Friar Point, Miss.—Bids will be received until Jan. 5 by the Board of Supervisors of Coahoma County for the construction of a steel bridge over Philips Bayou on the road from Lula to State Levee. S. F. Carr is Clk. of Superv.

Gulfport, Miss.—(Official)—Bids will be received until noon, Jan. 5 by the Board of Supervisors of Harrison County for the construction of two bridges at Pass Christian, estimated cost, $10,000 for the two. F. S. Hewes is Clk. of County Supervisors. Noted Dec. 11.

Hattiesburg, Miss.—Bids will be received until Jan. 6 by the Board of Supervisors of Forrest County for the erection of three steel bridges; one over Burkett's Creek on the Irene Chapel Road; one over De Priest's Creek on the McCallum Road, and one over Big Creek on the Rawis Springs Road. Herbert Gillis is Clk. of the Bd. Noted Dec. 11.

Kenton, Ohio—It is reported that the County Surveyor of Hardin County is preparing plans for 10 new concrete bridges, bids for which will probably be advertised in the spring. The estimated cost is $15,000. L. R. Anspach is County Surv. U. J. Pfeiffer is County Audr.

Youngstown, Ohio—Press reports state that the City Engineer has completed plans for a 300-ft. concrete bridge to be erected over Andrews Hollow in Crandall Park at an estimated cost of $65,000.

Zanesville, Ohio—(Official)—Bids will be received until 11 a.m., Jan. 14, 1914, by the Board of Commissioners of Muskingum County for the construction of the superstructure of a bridge over Salt Creek, near Bridgeville, Ohio, in Salt Creek Township, known as the Muse Bridge. Fred C. Werner is Clk. of Comrs. Noted Oct. 2 and 23.

Salem, Ind.—(Official)—Bids will be received until 1:30 p.m., Jan. 5 by the Commissioners of Washington County for the repair of three bridges. F. S. Munkelt is Audr.

+Shelbyville, Ind.—(Official)—The Board of Commissioners of Shelby County has awarded the contract for the construction of the approaches of the Shoup Bridge to HAYMOND & HOWARD, Waldron, Ind. A contract for the approaches of the Brandywine Bridge was awarded to OGDEN & KENT, Shelbyville. Noted Dec. 4.

Grand Rapids, Mich.—The Chicago, Kalamazoo & Saginaw Ry. plans to extend its route into the city shortly, and has announced its intention of erecting two bridges over the Grand River at Grand Rapids. One bridge will span the river just below Wealthy St. and the other will be from the company's west side right-of-way to the Powers' estate at Front Ave., north of Pearl St. Work will be begun as soon as the City Council gives permission. L. Sergeant, Kalamazoo, Mich., is Supt. and Pur. Agt.

Grand Rapids, Mich.—Tentative plans have been completed by the City Engineer for a new concrete bridge to be erected at Pearl St. at an estimated cost of $138,000. It is said that the question of a bond issue for this amount will be submitted to the voters at the April election. L. Stevens is City Engr.

+The contract for the erection of the new Leonard St. Bridge has been awarded to the HACKEDORN CONTRACTING CO., Indianapolis, Ind., at $77,777.

Prairie du Sac, Wis.—The State Bridge Engineer has prepared plans for a steel bridge to be erected over the Wisconsin River. It will be about 1400 ft. long and will have a reinforced-concrete floor. The city, county and state appropriations for its construction amount to about $70,000. M. W. Torkelson, Madison, Wis., is State Bridge Engr. Noted July 17 and 31.

Charles City, Iowa—Bids will be received until noon, Jan. 7, by the Commissioners of Floyd County for the construction of bridges and culverts in the county. G. H. Elliott is County Engr. H. B. Rosenkrans is Audr.

York, Neb.—Bids will be received until noon, Jan. 13, by the Board of Commissioners of York County for the construction of wooden bridges in the county during 1914. H. F. Chapin is County Clk.

Manning, N. D.—Bids will be received until 2. p.m., Jan. 6 by the Commissioner of Dunn County for the erection of steel bridges ranging from 16 to 100 ft. long with 18-ft. roadways. T. Leroy Evans is County Audr.

Glasgow, Mont.—The Board of Commissioners of Valley County has instructed the County Supervisor to report as to the kind and size of bridge required across Cherry Creek, west of city; also on bridge required across Brazil Creek, on Road No. 282.

Warrensburg, Mo.—Bids will be received until 2 p.m., Dec. 31, by the County Clerk of Johnson County, for the erection of 25 steel bridges. Plans on file with David Mohler, County Highway Engr.

Corpus Christi, Tex.—Press reports state that Nueces County will hold a special election in about 60 days to vote on a bond issue of $165,000 for the construction of a causeway across Nueces Bay connecting the mainlands of Nueces and San Patricio Counties. The election held several months ago for this issue has been declared illegal. Noted Sept. 18.

Roberts, Idaho—It is reported that all bids submitted to the Board of Commissioners of Fremont County for the construction of a bridge over the Snake River near the county line of Bonneville and Fremont Counties, were returned unopened, and that no date has been fixed for receiving bids. Noted Nov. 13.

Tacoma, Wash.—Press reports state that the Oregon-Washington R.R. & Navigation Co. will ask bids early in January for the erection of a reinforced concrete viaduct over the city waterway. J. R. Holman, Seattle, Wash., is Asst. Gen. Mgr. Noted Dec. 11.

Grants Pass, Ore.—(Official)—We are advised that bids for the erection of a bridge over Williams Creek near Provolt have been postponed. The matter will be considered at the January meeting of the County Court of Josephine County, and it is probable that a concrete bridge will be constructed in the spring. The plans for the bridge have been slightly altered, and it will be about 104 ft. long, with a waterway of 88 ft., the center of the bridge will be 18 ft. above the bed of the stream. E. L. Colburn is County Clk. Noted Dec. 4.

Los Angeles, Calif.—Bids will be received until 2 p.m., Dec. 29, by the Board of Supervisors of Los Angeles County for the construction of a bridge over the Castiac River on the Saugus-Ventura Road in the Soledad District. A. M. McPherron is Deputy Clk.

Madera, Calif.—It is reported that the Board of Supervisors of Madera County will receive bids in January for the erection of a 600-ft. bridge over Ash Slough. It will have 30-ft. spans and a 21-ft. roadway. The Federal Engineering Co., Central Bldg., Los Angeles, is Engr.-in-Charge.

Napa, Calif.—It is said that the taxpayers of Napa have recently voted in favor of a bond issue of $25,000 for the erection of a stone bridge over the Napa River.

+St. Cesaire, Que.—(Official)—The Montreal & Southern Counties Ry. has awarded the contracts for the erection of a bridge over the Yamaska River at St. Cesaire to ROSS & McCOMB for the substructure, and to the HAMILTON BRIDGE CO., Hamilton, Ont., for the steel work. The estimated total cost is $36,000. Noted Dec. 11.

WATER SUPPLY—IRRIGATION

✚Boston, Mass.—The contract for laying about 2750 lin.ft. of water pipe in various streets was awarded to M. DE SISTO, 13 Sheafe St., Boston.

Bids will be received by the Department of Public Works, until Jan. 15, for the construction of an electric pumping station for the high-pressure fire service in the proposed underground pumping station in Charles St. Louis K. Rourke is Comr. Noted Sept. 18.

✚★Hartford, Conn.—Bids were received Dec. 11 by the Board of Water Commissioners for furnishing about 650 tons of c.i. pipe and about 10 tons of special castings as follows: F. A. BOUDLETTE & SON, Boston, Mass., $14,652 (awarded contract); John Fox & Co., New York, N. Y., $14,754; Standard Cast Iron Pipe & Foundry Co., Bristol, Penn., $14,951; U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J., $15,040; Warren Foundry & Machine Co., New York, N. Y., $15,545; Florence Iron Works, Florence, N. J., $16,547. Noted Nov. 27.

(Official—Bids will be received in the early spring by the Board of Water Commissioners for the construction of two dams and a dike to inclose the Nepang Reservoir, about 15 miles west of Hartford. Caleb Mills Saville, Pilgard Bldg., Hartford, is Ch. Engr. of the Water Bd.

Lyons, N. Y.—Bonds for $142,000 have been voted for the installation of a new water system at Lyons. Noted Oct. 23.

✚★Atlantic City, N. J.—(Official)—Bids were received Dec. 18, by the Board of Commissioners for laying 24- and 20-in. water mains in Arctic Ave., from Missouri to Maine Ave., as follows: E. L. BADER, Atlantic City, $39,695 (awarded contract); Empire Construction Co., $40,151; Whitmer & Cocco, $41,131; Keeley-McFeeley Co., $41,393; W. G. Fritz Co., $41,937; W. P. Corson, $42,040; J. I. Dick, $44,801. Noted Dec. 11.

Bangor, Penn.—The Bangor Water Co. is considering plans for the construction of a filtration plant at its reservoir at North Bangor.

Hancock, Md.—(Official)—Bids will be received by the Commissioners of Hancock, until 9 a.m., Dec. 29, for the construction of a reservoir, pump house and laying pipe for the water system. R. J. McCandlish is Treas. Noted Dec. 18.

✚Cherryville, N. C.—The contract for the construction of a water system has been awarded to B. F. ROBERTS, Macon, Ga. Estimated cost, $25,000. Noted Sept. 25.

Spencer, N. C.—The city proposes to purchase and improve the local water plant at Spencer. D. Fulk is City Clk.

Washington, N. C.—Gilbert C. White, Engr., Charlotte, is preparing plans for the construction of a water system and municipal electric-light plant at Washington.

Columbia, S. C.—Bids will be received by the city until Dec. 30 for the extension of the water and sewer systems. W. F. Stieglitz is Water Comr., and John McNeal, City Engr. Noted Oct. 16.

Macon, Ga.—Plans are being prepared for laying water mains in Cherokee Heights. H. D. Langworthy is Supt. Water-Wks.

Midville, Ga.—The town is considering plans for an expenditure of $12,000 for the improvement of the water system. E. W. Brooks is Town Clk.

Williamsburg, Ky.—The Williamsburg Water Co., recently organized, contemplates the construction of a water plant. A. Gatliff is interested.

Akron, Ohio—The contract awarded to the Carroll Porter Co., Pittsburgh, Penn., for laying the water line from the Kent dam to the reservoir in East Akron, has been revoked by the Board of Control because of delay in the work. The contract involves $100,000, and will be turned over to the American Surety Co.

Cincinnati, Ohio—Bids will be received by V. T. Price, Dir. Pub. Ser. until noon, Dec. 26, for laying a water main in Hathaway St.

Moulton, Iowa—The City Council is considering the installation of a water system at Moulton.

✚Mount Ayr, Iowa—The contract for the installation of a water system at Mount Ayr, has been awarded to the DES MOINES BRIDGE & IRON WORKS, Des Moines, Iowa, at $36,169. Bids were received Dec. 4. Noted Nov. 27.

Wabasha, Minn.—Bids will be received by J. M. Schouweiler, City Recdr., until Jan. 27 for the construction of a water system.

Topeka, Kan.—Bids will be received by B. Walker, Secy. State Irrigation Board, Osborne, Kan., until Dec. 30, for the construction of an irrigation system for Wallace County. H. B. Walker, Manhattan, Kan., is Engr.

✚Westmoreland, Kan.—(Official)—The contract for the construction of a water system here has been awarded to the O'NEILL CONSTRUCTION CO., Leavenworth, Kan., at about $15,000. Bids were received Dec. 17 by Warren Anthony, City Clk. Noted Dec. 4.

Morrill, Neb.—(Official)—Bids will not be received until the spring for the construction of a water system at Morrill. Estimated cost, $15,000. A. A. Kearney is Clk. Noted Dec. 11.

Scottsbluff, Neb.—Bids will be received by G. L. Shumway, City Clk., about Feb. 1, for 4- and 6-in. pipe, special castings and fire hydrants. Estimated cost, $15,000. Yoder & Liljenstolpe, Scottsbluff, are Engrs.

Plentywood, Mont.—An expenditure of $25,000 is being considered for the installation of water and sewer systems.

Albany, Tex.—Bonds for $18,000 have been voted for the improvement of the water system.

Galveston, Tex.—At a recent election, bonds for $150,000 were voted for increasing the municipal water supply and extending the sewer system. Noted Aug. 7.

Roberts, Idaho—The Jefferson Irrigation Co., Ltd., has been incorporated to construct an irrigation system. The incorporators are Wheelock N. Abbott, John Hanson, Charles Nordstrom and Wrick Palmgren, all of Roberts.

✚Centralia, Wash.—(Official)—Bids were received by L. M. Lee, City Clk., Dec. 9, for the construction of about four miles of 20-in. and about 10 miles of 18-in. wood-pipe water mains, as follows: (a) cash plan, (b) bond plan, W. H. MITCHELL, Seattle, (a) $124,758 (awarded contract); (b) $135,988; Sanset & Thorswig, Billingham, (a) $128,164; (b) $143,055; Allred & James, Centralia, (a) $133,880; (b) $153,268; Atlas Construction Co., Everett, (a) $128,803; (b) $134,803; E. O. Hall, Hood River, Ore., (a) $130,422; (b) $155,081; Washington Construction Co., Seattle, (a) $127,830; (b) $141,047. Noted Dec. 4.

✚Tacoma, Wash.—(Official)—Bids were received Dec. 12 by Nicholas Lawson, Comr. of Light and Water, for the construction of water mains in the Fern Hill district, as follows: E. M. MOORE, 524 Sheridan Ave., Tacoma, $19,000 (awarded contract); W. J. Murphy, $21,935; Fred Pelligrinni, $23,745; George P. Wright, $21,477; McHugh Construction Co., $21,963; Anton Warter, $22,633; N. A. Jones, $21,112; George M. Salvidge, $21,443; James Paine, $22,400. Noted Dec. 4.

✚Burlingame, Calif.—The City Trustees have awarded the contract for the construction of a reservoir for the water system to ROBERT TROST, San Francisco, at $14,000.

Hanford, Calif.—The Kings River Canal & Irrigation Co. will extend its canals and ditches over an additional 25,000 acres.

Modesto, Calif.—The Modesto Irrigation District is considering plans for the extension of its irrigation system.

Newport Beach, Calif.—Bids will be received by L. S. Wilkinson, City Clk., about Jan. 15, for the construction of about four miles of water mains. Estimated cost, $25,000. Noted Nov. 13.

Oceanside, Calif.—S. B. Lippincott, Central Bldg., Los Angeles, is preparing plans for the construction of a steel pipe line and concrete reservoir at Oceanside.

Placerville, Calif.—T. G. Patton, of Placerville, is interested in the construction of an irrigation system in El Dorado County.

Reedley, Calif.—Plans are being prepared by C. P. Jensen, Engr., Fresno, Calif., for the extension of the water system to cost $35,000. Contract will be awarded some time in February. Noted Nov. 6.

Sanger, Calif.—At a recent election, bonds for $32,000 were voted for the purchase and improvement of the water system at Sanger. Noted Nov. 27.

Santa Barbara, Calif.—Plans are being prepared by S. B. Lippincott, Central Bldg., Los Angeles, for the construction of a dam for the water system.

South Pasadena, Calif.—The Marengo Water Co. contemplates the extension of its water mains to provide a fire protection service.

Medicine Hat, Alta.—Plans are being prepared by A. K. Grimmer, Engr., Medicine Hat, for the construction of a new water system here to cost $175,000.

SEWERS

✚Boston, Mass.—Bids were received by the Department of Public Works, Dec. 12, for the construction of sewerage works in Davenport Brook, Dorchester District, as follows: ANTHONY BARUFFALDI, $7048 (awarded contract); M. De Sisto & Co., $7148; Joseph Rugo, $7501; McCarthy & Walsh, $7845; West Roxbury Trap Rock Co., $8546; Peter W. Hill, $8882; John McMcCourt & Co., $9213. Noted Dec. 11.

Troy, N. Y.—Bids will be received by the Board of Contract and Supply until 11 a.m., Dec. 26, for the construction of a sewer in Winter St. George C. Lecomte is Secy. pro tem.

Camden, N. J.—The City Council has authorized the construction of sewers in various streets. W. D. Brown is City Clk.

Newark, N. J.—(Official)—Bids were received Dec. 16, by the Passaic Valley Sewerage Commission for the construction of Section 3 of the outfall pressure tunnel under a portion of Jersey City, Bayonne and Newark Bay, as follows: Kingsbridge Construction Co., New York, N. Y., $1,327,480; William Horne Co., 37 East 28th St., New York; $1,279,690; John F. Shanley, Jr., Newark, N. J., $1,417,300; Keystone State Construction Co., Philadelphia, Penn., $1,445,000; Mason & Hanger Co., 242d St. and Van Cortlandt Park, New York, $1,487,500; Booth & Flinn, Ltd., Pittsburgh, Penn., $1,634,061; Carter Construction Co., 42 Broadway, New York, $1,771,900. Noted Dec. 4.

Carbondale, Penn.—Plans are being prepared by R. I. Giles, City Engr., for the reconstruction of the sewer system in Carbondale.

Norristown, Penn.—Plans have been prepared by George W. Fuller, Consult. Engr., 170 Broadway, New York, N. Y., for the construction of the proposed sewage disposal plant at Norristown.

Scranton, Penn.—Plans are being prepared by the City Engineer for the construction of a sewer in Linden St., to cost $78,500; also a sewer in Pine Brook, to cost $79,500.

Baltimore, Md.—The Sewerage Commission has rejected all bids received for Sanitary Contract No. 123, for constructing sewers in South Baltimore.

★Washington, D. C.—(Official)—Bids will be received by the Commissioners of the District of Columbia until 2 p.m., Jan. 2, for sewer construction. D. C. Oliver, P. Newman, F. L. Siddons and Chester Harding are Comrs.

Columbia, S. C.—See item under Water Supply—Irrigation.

New Albany, Miss.—Bids will be received by the Mayor and the Board of Aldermen until 8 p.m., Jan. 6, for the construction of a sewer system. S. W. Beville is City Clk.

✚Vicksburg, Miss.—The City Commission has awarded the contract for the construction of a storm sewer in Jackson St. to the SOUTHERN PAVING & CONSTRUCTION CO., Chattanooga, Tenn., at $6500.

Canton, Ohio—(Official)—Bids were received Dec. 17, by Ray F. Harbert, Dir. Pub. Ser., for the construction of a sewage disposal plant as follows: Grant, Sarstedt & Merriman, Cleveland, $243,206; $212,810; J. C. Devine Co., Alliance, $237,382; $251,720; $260,322; Fletcher & Ule, Akron, $244,877; $266,096; Larrowe Construction Co., Detroit, Mich., $275,187; $293,826; $288,091; Pitt Construction Co., Pittsburgh, Penn., $261,-

524; $298,801; Masters & Mullen Construction Co., Cleveland, $292,146; $286,411; $272, 073. Noted Nov. 27.

Centerburg, Ohio—Plans are being prepared by H. L. Maddocks, Engr., Trust Bldg., Newark, Ohio., for the construction of a sewer system and sewage disposal plant at Centerburg. Estimated cost, $25,000.

Dayton, Ohio—(Official)—Bids will be received in the early spring by the city for the construction of sewers in Eaton, Fairview and Pritz Sts. Estimated cost, $32,000. C. H. Kline is City Engr. and F. O. Eichelberger is Sewer Engr. Noted Dec. 11.

Markle, Ohio—Surveys are being made for the construction of a sewer system in Markle.

+Ravenna, Ohio—(Official)—The contract for the construction of sewers in Central Ave. has been awarded to H. F. GREEN, Ravenna, at $7000. Bids were received Dec. 15. Noted Dec. 11.

Springfield, Ohio—Bonds for $48,000 have been voted for the construction of a sewage-disposal plant.

Fond du Lac, Wis—Bids will be received by J. F. Hohensee, City Clk., until Feb. 15, for the construction of about one mile of 8- to 18-in. sewers. J. S. McCullough is City Engr.

Galesburg, Wis.—Bids will soon be received for the construction of a storm sewer in District No. 2. G. P. Bradish, La Crosse, Wis., is Engr.

Adel, Iowa—Bids will be received by V. T. Sweeley, City Clk., until Jan. 5, for sewer construction.

Fort Benton, Mont.—The construction of a sewer system is under consideration.

+Kansas City, Mo.—The Board of Public Works has awarded the contract for the construction of Sections 398 and 399 of the Joint Creek Sewer, to W. C. MULLINS, Kansas City, at $48,800.

+Trenton, Mo.—Bids were received for the construction of sewers in (a) District 9 and (b) District 10, as follows: G. O. Skillbred, St. Joseph, (a) $19,882; (b) $11,005; HOOVER BROS., (a) $18,127 (awarded contract); (b) $12,048; P. A. JOHNSON, Kansas City, (b) $10,155 (awarded contract); Halpin, Boyle & Behr, Kansas City, (b) $12,611.

Dallas, Tex.—Plans have been prepared by J. H. Fuertes, Engr., 140 Nassau St., New York, N. Y., for the construction of the proposed sewage disposal plant at Dallas. Estimated cost, $550,000. Noted Sept. 11.

Galveston, Tex.—See item under Water Supply—Irrigation.

Houston, Tex.—(Official)—Bids will be received by E. E. Sands, City Engr., until 2 p.m., Dec. 27, for the construction of storm sewers in Fannin and San Jacinto Sts., and in the business district. Estimated cost, $35,500.

+Henryetta, Okla.—(Official)—The contract for the construction of sewers in District No. 2 has been awarded to J. O. SEVERNS, Oklahoma City, Okla., at $7500. Bids were received Dec. 15. Noted Dec. 4.

Seattle, Wash.—V. Ramaglio, 6506 Third Ave., N. W., Seattle, submitted the lowest bid at $6650, for the construction of sewers in Surber Place.

Napa, Calif.—Plans are being prepared for the construction of a storm sewer system, for which $10,000 is available.

Ocean Beach, Calif.—Bids will soon be received by the city for the construction of about 16 miles of sewers. Plans have been prepared by F. M. Lockwood, Engr. Estimated cost, $50,000. Noted Dec. 11.

Pasadena, Calif.—See item under Water Supply—Irrigation.

Sanger, Calif.—At a recent election, bonds for $30,000 were voted for the construction of a sewer system at Sanger. Noted Oct. 23.

+Santa Barbara, Calif.—The contract for the construction of about 6500 lin.ft. of sanitary sewers has been awarded to the MODERN CONSTRUCTION CO., 1023 Marsh-Strong Bldg., Los Angeles, at $10,985.

San Francisco, Calif.—Plans are being prepared for the construction of sewers in Locksley and Seventh Aves. Estimated cost, $22,000.

Ottawa, Ont.—The City Council is considering the construction of an intercepting sewer to cost $56,827. J. A. Ellis is Mayor.

Vancouver, B. C.—(Official)—The Burrand Peninsular Sewerage Commission has rejected all bids received Dec. 1 for the construction of the Canoe and China Creek sections of the Greater Vancouver Sewerage system. The work will be done by day labor. A. D. Creer, 119 Pender St., W., Vancouver, is Ch. Engr. Noted Nov. 27.

GARBAGE

New York, N. Y.—(Official)—Bids will be received until noon, Dec. 29, by William H. Edwards, Comr. of Street Cleaning, 12th Floor, Municipal Bldg., Borough of Manhattan, for construction of a bridge and dumping board at the foot of 72d St., East River, Borough of Manhattan.

New York, N. Y.—(Borough of Queens)—(Official)—Bids were received as follows, Dec. 17, by Maurice E. Connolly, Pres. Borough of Queens, for the construction of the proposed destructor plant at Ridgewood, Borough of Queens: Marble Arch Co., New York, $67,021; Peter Cleary, 115 Marion St., Brooklyn, N. Y., $46,091; Pfeffer & Shay, $89,942; Philip A. Fox & Co., $73,862.

STREETS AND ROADS

+Hartford, Conn.—Contracts for the construction of state roads, bids for which were received by the State Highway Commissioner, Dec. 3, have been awarded as follows.

Town of Bethany, about 7430 lin.ft. gravel construction on the New Haven road, to the CONNECTICUT GOOD ROADS & CONSTRUCTION CO., New Britain, Conn., at $8767.

Town of Avon, about 6230 lin.ft. native stone macadam construction on the Farmington road, to the ROBERT G. MILLER CONTRACTING CO., Bloomfield, Conn., at $8516. Noted Dec. 11.

New York, N. Y.—(Official)—(Borough of Manhattan)—Bids will be received by the President of the Borough, Municipal Bldg., until 2 p.m., Jan. 2, 1914 for various road improvements in the Borough of Manhattan. George McAneny is Pres.

(Borough of Richmond)—The following are the bids received by the President of the Borough, Borough Hall, Richmond, Dec. 16, for repaving with wood block on the present concrete foundation the roadway of Richmond Terrace, from York Ave. to Sailors' Snug Harbor Dock; Richard Lamb, $35,032; the Republic Construction Co., Woolworth Bldg., New York, $38,931; the U. S. Wood Preserving Co., 165 Broadway, New York, $31,676; the Topeka Co., $40,138; the Barber Asphalt Paving Co., 29 Sixth Ave., Brooklyn, N. Y. For regulating and repaving with napped granite blcks. the roadways of Richmond Turnpike from Tompkins Ave. to Brook St. and other streets; bids were received from John E. Donovan, $27,895; Joseph Johnson Sons, $28,892; Cornelius Vanderbilt, $26,219; the Topeka Co., $31,535. George Cromwell is Pres. Noted Dec. 11.

New York, N. Y.—(Official)—(Borough of Manhattan)—Bids will be received by the President of the Borough, Municipal Bldg., Crotona Park, until 10:30 a.m., Dec. 30, for various road improvements. Cyrus C. Miller is Pres.

(Official)—The following are the bids received by the Commissioner of Docks, Battery Place, North River, Dec. 18, for repairing the asphalt pavement on the marginal street of the North, East and Harlem Rivers; the Sicilian Asphalt Paving Co., 41 Park Row, New York, $1.52 per sq.yd.; the Barber Asphalt Paving Co., Woolworth Bldg., New York, $1.47 per sq.yd.; the Uvalde Contracting Co., 1 Broadway, New York, $1.70. R. A. C. Smith is Comr. Noted Dec. 11.

Jersey City, N. J.—The Board of City Commissioners has approved plans for paving Concord St. from Hoboken Ave. to Fleet St. Charles A. Van Keuren is City Engr.

+Penns Grove, N. J.—The contract for the construction of about seven miles of highway near Penns Grove has been awarded by the County Commissioners to JOHN P. HOLMES, Penns Grove.

Harrisburg, Penn.—(Official)—All bids received Dec. 18, by the State Highway Department for the reconstruction of a section of the road in New Castle Township, Schuylkill County, have been rejected, and the work will be readvertised, Edward M. Bigelow is State Highway Engr.

Carrick (Pittsburgh post office), **Penn.**—Bids will be received until 8:30 p.m., Dec. 30, by the Borough Council, Municipal Bldg., Borough of Carrick for grading, curbing and paving Nobles Lane from the Brownsville Road, to the borough line of Charles St. William M. Donley is Borough Engr.

+Jacksonville, Fla.—(Official)—The Committee of Public Trustees, has awarded the contract for paving in various streets to the C. S. YOUNG CONSTRUCTION CO., at $40,018. Other bids follow: The San Asphalt & Construction Co., $40,309; the Atlantic Bitulithic Co., $41,464; Dunn & Lallande Bros., $44,517; the Union Paving Co., $45,434. The contract calls for about 22,430 sq.yd. of asphaltic concrete pavement, together with curb, gutter, etc. L. D. Smoot is City Engr. Bids on brick pavement were rejected. Noted Nov. 27.

St. Petersburg, Fla.—Bids will be received until Jan. 26, 1914, by the Board of City Commissioners for grading and paving with vitrified brick and curbing with granite, West Central Ave. The contract calls for about 75,000 lin.ft. W. F. Devine is City Clk.

Kosciusko, Miss.—Bids will be received until Jan. 5 by W. R. Potts, Pres. of the Highway Comrs. for improving about 17 miles of road in District No. 1. Noted incorrectly Dec. 18 as Jan. 6 for opening bids.

+Vicksburg, Miss.—The contract for paving Jackson St. with brick on a concrete foundation has been awarded to the SOUTHERN PAVING CO., Vicksburg , at $45,250. C. R. Twiss is City Engr.

+Lake Charles, La.—(Official)—The contract for constructing about 38,000 sq.yd. of brick paving in Lake Charles has been awarded by the City Council to RICHIE BROS., Lake Charles, at $1.96 per sq.yd. E. L. Gorham is City Engr. Noted Sept. 27.

+Lake Charles, La.—The contract for paving Broad St. with creosoted wooden blocks has been awarded by the city to M. HYAMS, New Orleans, at $36,000.

+Bossier, La.—The contract for repairing Red River Bridge has been awarded to R. N. McKELLAR, at $8845. Noted Dec. 11.

Canton, Ohio—Plans are being prepared by the City Engineer for paving Fifth St. and Clark Ave. The cost is estimated at about $56,000.

Cincinnati, Ohio—Bids will be received until noon, Jan. 18, 1914 by the Commissioners of Hamilton County for various road improvements. Frederick E. Wesselmann is Pres.

Columbus, Ohio—Bids will be received until Jan. 6, by the State Highway Commissioners for grading and paving with water-bound macadam the National Road, Bechtel Township, Clark County. The estimated cost is about $15,300. James R. Marker is State Highway Comr.

Bids will be received by the State Highway Commission, until Jan. 6, for grading and paving with brick, the Portsmouth-Columbus Road, Clay Township, Scioto County. The estimated cost is $16,408.

Bids will be received by the State Highway Commissioner, until Jan. 6, for grading and paving with water-bound macadam, the Lancaster-Newark Road, Walnut Township, Fanfield County. The estimated cost is $25,355.

✚**Columbus, Ohio**—(Official)—The contract for grading and paving with medium traffic brick the Washington-London Road in Paint Township, Fayette County, has been awarded by the State Highway Commissioner to MARK & MARK, Washington, Ohio, at $10,494. James R. Marker is State Highway Engr. Noted Nov. 13.

✚(Official)—The contract for improving a section of the Angola Road, Mill Creek Township, Williams County, has been awarded to ROLLA M. MYERS, Attica, Ohio, at $16,100. James R. Marker is State Highway Comr. Noted Nov. 6.

(Official)—Bids will be received until 2 p.m., Jan. 6, 1913, by the State Highway Commissioner for the construction and improvement of sections of State Highways, A, B and E James R. Marker is State Highway Comr.

Columbus, Ohio—The City Council has voted in favor of paving Glenmawr Ave., Elliot Alley, from Morrison Ave. to Fairwood Ave., Milton Alley, from Gay St. to Long St., and Second Alley, north of Broad St., from Parkwood Ave. to Callender St.

Indiana—Bids will be received as follows for various road improvements:

Dec. 31 at Portland by the Commissioners of Jay County for the construction of a road in Jackson Township. John Bonifas is County Audr.

Jan. 5, 1914, at Danville, by the Commissioners of Hendricks County for the construction of a road in Washington Township. Lewis W. Borders is Audr.

Jan, 6, at Paoli by the Commissioners of Orange County for the construction of a road in French Lick Township. E. A. Palmer is Audr.

Jan. 7, at Shelbyville, by the Commissioners of Shelby County for the construction of a road in Sugar Creek Township. Frank W. Fagel is Audr.

Indianapolis, Ind.—Plans are being prepared by the Board of Park Commissioners for paving with concrete and asphaltic concrete, 34th St. from Illinois St. to Crown Hill Cemetery.

✚**South Bend, Ind.**—(Official)—The contract for the construction of a road in Center Township has been awarded by the County Commissioners to JERRY DONOVAN, South Bend, at $25,900. Clarence Sedgwick is County Audr. Noted Dec. 11.

Terre Haute, Ind.—Plans have been prepared by Herbert C. Anderson County Surveyor, for the improvement of East Wabash Ave. with vitrified brick at an estimated cost of about $58,000.

✚**St. Joseph, Mich.**—The contract for the construction of about three miles of the Three Oaks-Galien Road and about 5½ miles of the New Buffalo-Three Oaks-Galien Road has been awarded to JACOB ACKERMAN & CO., La Porte, Ind., at $17,200, and $28,675 respectively.

Bloomington, Ill.—The City Engineer has prepared plans for brick pavement on Mill St., from Center St. to the east entrance of St. Joseph's Hospital. Elmer Folsom is City Engr.

✚**Elgin, Ill.**—(Official)—The contract for 42,852 sq.yd. of asphaltic macadam in Dist. No. 1, has been awarded to LOGAN & GIERTZ, Elgin, at $62,100. Other bids follow: the Western Improvement Co., Racine, Wis., $64,833; the Foley Construction Co., Chicago, Ill., $68,689; H. G. Goelitz, Oak Park, Ill., $68,907.

✚The contracts for paving West Chicago St. also part of Fulton St. have also been awarded to the LOGAN & GIERTZ CONSTRUCTION CO. at $4795 and $5010 respectively. Noted Nov. 27. Morgan H. Brightman is City Engr.

Moline, Ill.—(Official)—Bids will be received by the Board of Local Improvements until 2:30 p.m., Jan. 2, 1914, for paving various streets. Martin R. Carlson is Pres. of the Board.

Dubuque, Iowa—The Board of Supervisors has voted to spend $60,000 in the improvement of about 25 miles of road in Hawkeye County.

St. Paul, Minn.—The Board of Public Works has decided to pave Selby Ave., from Victoria St. to Herschel Ave., with creosoted wood block, at an estimated cost of $74,908. Oscar Claussen is City Engr.

Lawrence, Kan.—The City Council has decided to pave portions of Pinckney, Vermont, Kentucky, Louisiana, and Hancock Sts. with brick, and Rogers and Sherman Aves. Henry and Conklin Sts. with asphaltic concrete.

Kearney, Neb.—Plans have been prepared by Eugene Morey, City Engr., for paving one block on 22d St. and one block on First Ave.

✚**Dillon, Mont.**—The contract for the construction of a section of the Big Hole Road in Beaverhead County has been awarded to the CLIFTON, APPLEGATE CO., Spokane, Wash., at $13,575. Jay S. Baker is Clk. of the Comrs.

✚**Little Rock, Ark.**—The contract for constructing tarvia pavement and sidewalks in various streets has been awarded by the city to McCARTHEY & PEAY, Little Rock, at $13,000. R. H. Carter is Engr.

Houston, Tex.—(Official)—Bids will be received by the City Clerk until 2 p.m., Dec. 29, for the following road improvements: Paving McKinney Ave. from Main St. to Broadway, estimated cost $66,800; paving McKinney Ave. from Broadway to Velasco St., estimated cost $47,300; paving Austin St., from McGowan Ave. to Elgin Ave., estimated cost, $21,983. E. E. Sands is City Engr.

Houston, Tex.—The following are the bids opened Dec. 9 for paving, (a) Montgomery Ave. between Wood and Hogan Sts.; (b) Houston Ave.; (c) Montgomery Ave. between Hogan and Boundary Sts. C. L. Bernay, (a) $14,151; (b) $9256; Davis Bros., (a) $13,880; (b) $8532; (c) $33,912; Eureka Construction Co., (a) $13,559; (b) $8279; (c) $27,835; Texas Bitulithic Co., (c) $37,850; the Southern Westrumite Co., (c) $31,114. Noted Dec. 4.

Lufkin, Tex.—(Official)—The City of Lufkin will pave the driveway surrounding City Park, Lufkin Ave. from the City Park to Second St. and First St. from the tracks of the St. Louis Southwestern Ry. to Shepherd St. P. A. McCarthy & Sons, Lufkin, Tex., are City Engrs.

Mexia, Tex.—Bids will be received until Jan. 1, 1914 by G. W. Perkins, for paving various streets. The estimated cost is $80,000. H. S. Bennett is City Engr.

✚**Pocatello, Idaho**—The contract for the construction of a gravel road from Pocatello to Neuf has been awarded by the State Highway Commission to S. W. GLEIM, Pocatello, at about $1,750 per mile.

Bisbee, Ariz.—It is reported that the city will soon receive bids for the construction of about 2½ miles of roadway between Bisbee and Warren. The estimated cost is $30,000.

Phoenix, Ariz.—Lamar Cobb, State Engr., has completed plans for the construction of about 3½ miles of roads in Greenlee County, extending south of Clifton. The work includes grading and paving.

Seattle, Wash.—S. Normile, Lowman Bldg., at $46,355, was low bidder for grading and paving 39th Ave. Northwest. Other bids follow: P. J. McHugh, $48,254; L. C. Lane, $51,168; W. F. Manney & Co., $51,231; F. A. Hadley, $53,473; Hans Pederson, $54,432; Henry Brice, $55,829; Andrew Peterson, $59,033.

✚The contract for constructing the roadway from the Central waterfront pier to Bell St. has been awarded to the WEYMOUTH CONSTRUCTION CO., at $12,797.

S. Normile was low bidder for grading and paving Ellis Ave., at $28,047.

Spokane, Wash.—The City Engineer has completed plans for the paving of Boone Ave. The estimated cost is $8000. Morton McCartney is City Engr.

North Bend, Ore.—It is reported that the city will construct a road from North Bend to Eugene. The cost is estimated at $30,000.

✚**Portland, Ore.**—The contract for paving Broadway from Larabee St. to Wheeler St. has been awarded by the City Council to the WARREN CONSTRUCTION CO. Lumber-Exchange Bldg., Portland, at $10,530.

Los Angeles, Calif.—Bids will be received by the Board of Public Works until 10 a.m., Jan. 12, for lowering the grade of North Broadway from Temple St. to Sunset Boulevard, including the lowering of the Broadway tunnel. The work will cost about $200,000.

✚**Los Angeles, Calif.**—The contract for improving 21st St. between Western Ave. and Gramercy Place has been awarded to B. F. FORD and FREDERICK H. STOUT at $8375.

✚**Santa Ana, Calif.**—The contract for improving Section 2, Newport Road, has been awarded to GEORGE S. BENSON & SON, Stimson Bldg., Los Angeles, at $18,277.

Vancouver, B. C.—F. L. Fellowes, City Engr. is preparing plans for various street improvements, estimated to cost $175,000.

INDUSTRIAL NOTES

Bingham, Maine—The American Shoe Finding Co., recently destroyed by fire, will rebuild its factory.

Cambridge, Mass.—A seven-story factory will be erected at Main and Bedford Sts., under the supervision of W. L. Mowll, Arch.

Bridgeport, Conn.—The Canfield Rubber Co. has secured a site and will erect a four-story factory, 150x200 ft.

Batavia, N. Y.—The Batavia Rubber Co. will erect a three-story and basement factory, 83x101 ft., and two smaller buildings. The buildings will be of steel and brick.

Gloversville, N. Y.—The G. Levor & Co.'s plant, recently destroyed by fire, at a loss of $200,000, will be rebuilt.

Syracuse, N. Y.—The Drennare Hardware Co. will erect a three-story and basement storage warehouse. The estimated cost is $50,000.

Syracuse, N. Y.—The Sagamore Motors Corporation, recently incorporated with $75,000 capital, will erect a factory. J. S. Brown is one of the incorporators.

New York, N. Y. (Borough of Manhattan—(Official)—Bids will be received by the Department of Public Charities, until 2.20 p.m., Jan. 5, for the erection of a storehouse at Blackwells Island, New York, N. C.

(Borough of Brooklyn)—It is reported that the Bush Terminal Co., South Brooklyn, will erect another loft building on its property.

Boundbrook, N. J.—The Commercial Acetylene Railway, Light & Signal Co. will erect a factory, costing $75,000, in Piscataway Township, near the Lehigh Valley R.R. station.

Garfield, N. J.—The American Cigar Co. has secured a site at Passaic St. and River Road, on the Passaic River and will erect a five-story factory, 100x142 ft. The estimated cost is $60,000. Abram Ginsberg, Passaic, is the Arch.

✚**Maurer, N. J.**—(Official)—The contract for the erection of a three-story reinforced-concrete storehouse for the United States Cartridge Co., 111 Broadway, N. Y., has been awarded to the BARROWS-STEWART CO., 17 Battery Pl., N. Y. Lockwood, Greene & Co., New York, are the Archs.

Perth Amboy, N. J.—The J. T. Castle Ice Cream Co., Newark, has secured a site on Smith St., and wil erect on ice-cream factory and an ice plant. The estimated cost is $200,000.

Easton, Penn.—The Taylor-Wharton Iron & Steel Co., High Bridge, N. J., has purchased 50 acres of land and will establish a plant, costing $2,000,000.

Philadelphia, Penn.—C. Koch will erect a two-story addition, 100x150 ft., to his barrel factory.

✚**Philadelphia, Penn.**—The contract for the erection of a seven-story warehouse at 516 Locust St., for William H. Moore, has been awarded to JAMES G. DOAK & SONS, Mastbaum Bros. and Fleisher, are the Archs.

Walter Thompson, 1019 South Second St., Philadelphia, will have plans prepared for the erection of a fireproof brick and concrete warehouse at Front and Carpenter Sts.

Plans are being prepared by John Molitor, Arch., for the erection of a five-story and basement reinforced-concrete fac-

tory, 100x125 ft., also a reinforced-concrete and ornamental brick building, three stories and basement, 80x150 ft., to be erected in Germantown.

Scranton, Penn.—The T. & M. Miller Co., Scranton, will erect a reinforced-concrete storage warehouse. The estimated cost is $40,000.

Norfolk, Va.—Wade G. Gardner will erect a bakery, estimated to cost $40,000.

Parkersburg, W. Va.—The United States Roofing Tile Co. will erect a factory costing $30,000.

Irvine, Ky.—The Richmond Ice Co., Richmond, Va., is contemplating the erection of a branch plant here.

Cleveland, Ohio—The Miller Bros. Realty Co., 1520 Bronnell St., will erect a two-story laundry, 52x100 ft., estimated to cost $35,000. E. F. Gibbons, 408-1900 Euclid Bldg., Cleveland, is the Arch.

✚Laporte, Ind.—The contract for the erection of a $50,000 factory for the American Three-Way Prism Co., Chicago, Ill., has been awarded to STRUSS BROS.

Detroit, Mich.—Bids are being received by Louis Kamper, Arch., 702 Fine Arts Bldg., Detroit, for the erection of a four-story and basement factory, 58x104 ft., for the Banner Cigar Mfg. Co. The estimated cost is $60,000.

Chicago, Ill.—B. Kuppenheimer Co. will erect a four-story factory, 57x260 ft. The estimated cost is $150,000.

✚La Crosse, Wis.—The contract for the erection of a four-story addition, 40x170 ft., to the plant of the F. Heileman Brewing Co., has been awarded to FRANK SCHWALBE, La Crosse, at $150,000.

Milwaukee, Wis.—Bids are being received by Klug & Smith, Archs., Mack Bldg., for the construction of a reinforced-concrete coal shed, 191x268 ft., for the Gross Coal Co., at Canal and 1st Sts.

Bids will soon be received by Charles L. Lesser, Arch., 6225 Greenfield Ave., for the erection of a two-story reinforced-concrete and brick addition, 130x250 ft., to the factory of Shadboldt & Boyd Iron Co., Wright and Bolton Sts.

The Bradley & Metcalf Co. will erect in the spring a reinforced-concrete and brick factory, 80x100 ft., at Erie St. and Broadway.

Richland Center, Wis.—D. G. James will erect a two-story brick and concrete warehouse in the spring. The estimated cost is $70,000.

West Allis, Wis.—The Davis Mfg. Co., 15th Ave. and Park St., Milwaukee, will erect in the spring, a brick and steel fireproof factory, 150x290 ft., costing $150,000. Noted Aug. 14.

Seattle, Wash.—The Seattle Port Commission will erect a 500,000-bu. grain elevator on the west side of the East Waterway. Paul Whitham is Ch. Engr.

San Francisco, Calif.—The United Consumers' Brewery Association will erect a brewery, a malt house and a bottling plant at an estimated cost of $500,000. V. Wyss Thalman, 6th and Market St., is the Arch.

✚San Francisco, Calif.—The National Ice & Cold Storage Co. has awarded the contract to the VULCAN IRON WORKS, at $20,660 for the structural steel work on a four-story building at Union and Battery Sts.

Brantford, Ont.—The United Rubber Mfg. & Reclaiming Co. has had plans prepared for the erection of a factory, 70x250 ft. R. G. Wooten is Gen. Mgr.

Bridgeburg, Ont.—The Genesee Pure Food Co., Leroy, N. Y., is contemplating the erection of a branch factory at Bridgeburg.

Galt, Ont.—The Galt Knife Co., Ltd., will erect a factory, 45x140 ft., at Birch and State Sts. The building will be of brick and concrete.

Goderich, Ont.—The American Road Machinery Co. will erect a plant, estimated to cost $90,000.

Vancouver, B. C.—Plans are being prepared for the erection of carbarns for the British Columbia Electric Co. The estimated cost is $300,000.

FEDERAL GOVERNMENT WORK

Pier Extension—Hingham, Mass.—Bids were received as follows, Dec. 20, by the Bureau of Yards and Docks, Navy Department, Washington, D. C., for the construction of an extension to a pier at the Naval Magazine, Hingham, Mass.: W. H. Ellis, Boston, $9363; Lawler Bros., Boston, $8803; L. Robert Tidd Co., Boston, $9789; Darling-Slade Construction Co., Newport, R. I., $11,020; Allen Pope, Boston, $11,690; John D. Walsh, Inc., New York, $11,698; G. H. Harries, Boston, $9786; Fore River Ship Building Corporation, Quincy, Mass., $11,446. Noted Nov. 27.

Aluminum Rod—Springfield, Mass.—Bids will be received until 2 p.m., Dec. 31, by the Commanding Officer, Springfield Armory, Springfield, Mass., for furnishing and delivering f.o.b. Springfield, Mass., 1000 lb. aluminum rod, 1 in. in diameter, 10-ft. lengths, containing 1½% manganese.

Brass Rod and Tubing—Springfield, Mass.—Bids will be received until 2 p.m., Dec. 31, by the Commanding Officer, Springfield Armory, for furnishing and delivering f.o.b. 7000 lb. hard brass rod, 3000 lb. soft brass rod and 15,000 pieces brass tubing.

★Lift—Hartford, Conn.—Bids will be received until 3 p.m., Dec. 30, by Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., for the installation of a hydraulic plunger lift in the U. S. post office at Hartford, Conn.

Fire Engine—New York, N. Y.—Bids will be received until 10 a.m., Jan. 5, by Lt.-Col. M. Gray Zalinski, Quartermaster Corps, U. S. A., Army Bldg., New York, for furnishing one gasoline fire engine.

✚Oak Piles, Stone, Etc.—Tompkinsville, N. Y.—The contract for placing piles, stones and brush at the Hereford Inlet Light Station, N. J., has been awarded to the RENNEL CONSTRUCTION CO., 26 Cortland St., New York. The address of this company was noted incorrectly Dec. 18.

Post Office—Burlington, N. J.—Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., has rejected all bids recently received for the construction of a post office at Burlington, N. J., as being in excess of the appropriation. Noted Dec. 18.

Post Office—Mauch Chunk, Penn.—Preliminary plans are being prepared by Oscar Wenderoth, Government Arch., for a new post office building to be erected at Mauch Chunk, Penn.

Bridge—McKees Rocks, Penn.—The War Department has named three engineers to pass upon the plans for the proposed $2,000,000 bridge over the Ohio River, between the Woods Run district of Pittsburgh and the Borough of McKees Rocks.

✚Groynes for Light Station—Philadelphia, Penn.—Bids were received by the Light House Inspector, Philadelphia, Penn., for furnishing and constructing timber groynes at Cape Henelopen Light Station, Del., as follows: WM. A. RUSSELL, Lewes, Del., $3077 (awarded contract); Wm. H. Bookhammer, Lewes, Del., $5037; Interstate Construction Co., New York, $5619; E. Hart, Norfolk, Va., $5812; Edward F. Fonder, Philadelphia, Penn., $5929; Richard Parrott, Newburgh, N. Y., $6200; Jones Construction Co., Wilmington, Del., $7145; Fred A. Wallace, Wilmington, Del., $9532.

Wharf—Annapolis, Md.—Bids will be received until 11 a.m., Jan. 17, by H. R. Stanford, Ch. Bureau of Yards and Docks, Navy Dept., Washington, D. C., for a reinforced concrete wharf at the U. S. Naval Academy.

Interior Office Partitions—Washington, D. C.—Bids will be received until 2 p.m., Dec. 30, by Elliott Woods, Supt. of Buildings and Grounds, Washington, D. C., for installing office partitions in the additional story of the House of Representatives office building.

✚Marble Finish—Washington, D. C.—The contract for the interior marble finish of an additional story to the House of Representatives' office building has been awarded to the VERMONT MARBLE CO., Rutland, Vt., at $12,300. Noted Dec. 18.

Purchase of Copper—Washington, D. C.—Bids will be received until Dec. 29, by the Dept. of the Interior, Lewis C. Laylin, Secy., for the purchase and removal of about 100,000 lb. of old copper, after it has been removed from the roofs of the Pension Office building.

Road—Washington, D. C.—The Department of Agriculture at Washington may spend $8000 for the construction of "Boone Way," from Crab Orchard, Ky., to Cumberland Gap, Ky.

Supply Ship and Transport—Washington, D. C.—Bids were received as follows, Dec. 20, by the Secretary of the Navy, Washington, D. C., for the construction of Transport No. 1 apd Supply Ship No. 1: Transport No. 1, 9800 tons displacement; speed, 14 knots; limit of cost, $1,850,000; time of construction, 24 months; New York Shipbuilding Co., Camden, N. J., $1,752,000; Fore River Shipbuilding Corporation, Quincy, Mass., $1,804,000; Seattle Construction & Dry Dock Co., Seattle, Wash., $1,931,000; William Cramp & Sons Ship & Engine Building Co., Philadelphia, Penn., $1,832,000 (deduction of $6600 if tried over course in Delaware Bay); Newport News Ship Building & Dry Dock Co., Newport News, Va., $1,730,000; on bidder's plans for machinery, $1,700,000 (deduction of $5000 if tried over course in Delaware Bay); Supply Ship No. 1, 8500 tons displacement, 14 knots; limit of cost, $1,425,000, 21 to 24 month; New York Ship Building Co., $1,399,500; Fore River Ship Building Corporation, $1,419,000; Seattle Construction & Dry Dock Co., $1,404,000; William Cramp & Sons Ship & Engine Building Co., Philadelphia, $1,401,000 (deduction of $6100 if tried over course in Delaware Bay); Newport News Ship Building & Dry Dock Co., Newport News, Va., $1,345,000; on bidder's plans for machinery, $1,320,000 (deduction of $5000 if tried over course in Delaware Bay). Noted Oct. 23.

Post Office—Winston-Salem, N. C.—Bids were received as follows: Dec. 16, by Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., for the construction of a post office at Winston-Salem: (a) limestone; (b) sandstone. Wise Granite Co., Richmond, Va., (a) $176,500; (b) $184,000. Boyle-Robertson Construction Co., Washington, D. C., (a) $180,914; (b) $189,914. J. E. & A. P. Pennock, Land Title Bldg., Philadelphia, Penn., (a) $182,900; (b) $191,400. Olin Gerlach, Frostburg, Md., (a) $183,700; (b) $191,000. Norman Ker, 1123 Broadway, New York, (a) $184,000; (b) $192,000. Interurban-General Construction Co., 1790 Broadway, New York, (a) $195,300; (b) $202,600. A. H. Walls, Winston-Salem, N. C. (a and b) $228,218. Noted Nov. 27.

Building—Fort Moultrie, S. C.—Bids will be received until 10 a.m., Jan. 20, by the Constructing Quartermaster, Fort Moultrie, S. C., for constructing 12 noncommissioned Officers' Quarters.

Repairs to Vessel—Charleston, S. C.—Bids will be received until 2 p.m., Jan. 10, by the Light House Inspector, Charleston, S. C., for docking and repairing steam light-house tender "Cypress."

Canal Work—Jacksonville, Fla.—The Board of United States Engineers, Washington, D. C., are in favor of the improvement of Ocklawaha River. This will give a 6-ft. channel from mouth of River to St. Johns River to Leesburg. The estimated cost is $732,000.

Officers' Quarters—Key West, Fla.—Bids will be received until 11 a.m., Jan. 17, by H. R. Stanford, Ch. Bureau of Yards and Docks, Navy Dept., Washington, D. C., for officers' quarters at the naval station, Key West, Fla.

Building—New Orleans, La.—Bids will be received until 2 p.m., Jan. 20, by the Light House Inspector, New Orleans, for erecting beacon light structures in Flat Lake, Grand Lake, Lake Chicot, Six Mile Lake, La.

✚✚Concrete Revetment—New Orleans, La.—The contract for the concrete revetment on Butler levee has been awarded to J. D. McGEE, New Orleans, La.

✚Wiring—Kalamazoo, Mich.—The contract for the installation of a conduit and wiring system, including lighting fixtures in the U. S. post office at Kalamazoo, Mich., has been awarded to the STRANG ELECTRIC CO., Philadelphia, Penn. Noted Nov. 6.

Post Office—Duquoin, Ill.—GBids were received as follows, Dec. 20, by Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., for the construction of a post office at

Duquoin: (a) Limestone; (b) sandstone: Hiram Lloyd Building & Construction Co., St. Louis, Mo., (a) $52,617; (b) $54,517; Northern Construction Co., Milwaukee, Wis., (a) $52,990; (b) $54,190; R. S. Moore, Lafayette, Ind., (a) $54,383; (b) $55,944; A. W. Lane, Chicago, Ill., (a) $56,689; (b) $58,851; Frazier-Evans Construction Co., Philadelphia, Penn., (a) $56,765; (b) $59,765; Volney E. Taylor, Huntington, W. Va., (a) $58,000; (b) $59,000; Callahan-Mandl Co., Chicago., (a) $58,765; (b) $60,251; James Corse, Racine, Wis., (a) $60,500; (b) $63,000. Noted Nov. 6.

Cement—Fort Leavenworth, Kan.—Bids will be received until 2 p.m., Jan. 12, by the Constructing Quartermaster, U. S. Military Prison, Fort Leavenworth, Kan., for about 7000 barrels of Portland cement.

Sand—Fort Leavenworth, Kan.—Bids will be received until 2 p.m., Jan. 12, by the Constructing Quartermaster, U. S. Military Prison, Fort Leavenworth, for about 4000 cu.yd. of Missouri River sand.

★**Steel Reinforcement Bars**—Great Falls, Mont.—Bids will be received until 2 p.m., Jan. 20, at the office of the U. S. Reclamation Service, Great Falls, Mont., for furnishing about 750,000 lb. of steel reinforcement bars. A. P. Davis is Acting Director.

Pontoons and Pipe Lines—Little Rock, Ark.—Bids were received Dec. 15, by Capt. A. B. Putnam, for constructing pontoons and pipe lines for dredges "H. S. Taber" and "Robert McGregor" as follows: Wm. J. Hess, Green Bay, Wis., $35,-197, Riter Conley Mfg. Co., Pittsburgh, Penn., $52,900, American Bridge Co., Pittsburgh, $45,654, Milwaukee Bridge Co., Milwaukee, Wis., $46,125, Dubuque Boat & Boiler Works, Dubuque, Iowa, $65,150. Noted Nov. 20.

Post Office—Newport, Ark.—Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., has rejected all bids recently received for the construction of a post office at Newport as being in excess of the appropriation. Noted Dec. 11.

✚**Lock Gates**—Dallas, Tex.—The contract has been awarded to the MILWAUKEE BRIDGE CO., Milwaukee, Wis., at $14,763, for constructing two pairs of lock gates. Other bidders were Granger & Co., Inc., $17,707, Midland Bridge Co., $18,400, Chicago Bridge & Iron Works, $18,900, Penn Bridge Co., $20,940, Independent Bridge Co., $21,240, M. H. Treadwell Co., $24,900. Noted Nov. 13.

★**Lock Gates**—Dallas, Tex.—Bids will be received until noon, Jan. 19, by T. H. Jackson, Corps Engrs., U. S. A., for erecting two pairs of steel lock gates.

Post Office—Marlin, Tex.—Bids were received as follows Dec. 16, by Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., for the construction of a post office at Marlin, Tex.: Frank H. Latimer & Son, Kansas City, Mo., $48,832 (sole bidder). Noted Nov. 13.

✚**Post Office**—Muskogee, Okla.—Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., has awarded contract for the installation of the mechanical equipment in the post office at Muskogee to G. A. KEES DOMESTIC ENGINEERING CO., St. Paul, Minn. at $49,357. Noted Dec. 18.

★**Cement**—Denver, Colo.—Bids will be received until 10 a.m., Jan. 15, at the office of the U. S. Reclamation Service, 408 Commonwealth Bldg., Denver, for furnishing 250,000 barrels of Portland cement, f.o.b. cars at the works of the bidder. A. P. Davis is Acting Director.

Post Office—La Junta, Colo.—Bids were received as follows, Dec. 19, by Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., for the construction of a post office building at La Junta: (a) Limestone; (b) sandstone: J. H. Wiese, Omaha, Neb., (a) $78,895; Frank Kirchhof Lumber Co., Denver, Colo., (a) $85,779; (b) $85,479; J. H. Cowell, Denver, Colo., (a) no bid; (b) $88,410. Noted Nov. 13.

★**Steel Reinforcement Bars**—Boise, Idaho—Bids will be received until 2 p.m., Jan. 20, by A. P. Davis, Acting Director, U. S. Reclamation Service, Boise, Idaho, for furnishing about 490,000 lb. of steel reinforcement bars.

✚**Drainage**—Layton, Utah—The U. S. Dept. of Agriculture, Drainage Investigations, has awarded the contract to BROWN & KLEINSCHMIDT, 306 Dooley Bldg., Salt Lake City, for excavating trench and laying tile for farm drainage near Layton, amounting to about 10 miles of work.

★**Quarters**—Fort Huachuca, Ariz.—Bids will be received until 10 a.m., Jan. 9, by E. S. Walton, Const. Quartermaster, Fort Huachuca, for constructing one double set of captains' quarters, including plumbing and electric wiring, and a double blacksmith shop at this post.

Torpedo Station—Bremerton, Wash.—The Puget Sound Navy Yard, at Bremerton, Wash., will have a naval torpedo station erected, according to reports from Attorney-General McReynolds. The estimated cost is $150,000.

✚**Post Office**—Albany, Ore.—Oscar Wenderoth, Superv. Arch., Treasury Dept., Washington, D. C., has awarded contract for the construction of a post office at Albany, to FRED A. ERIXON, Salem, Ore., at $58,282. Noted Dec. 4.

✚**Jetty**—Portland, Ore.—A contract has been awarded to GIEBISCH & JOPLIN, of Portland, at $629,624 for the construction of the north jetty at the entrance to Tillamook Bay. Noted Nov. 20.

✚**Buildings**—Fort Mason, Calif.—The following contracts have been awarded for the construction of two reinforced-concrete storehouses for the Army Supply Depot, Fort Mason, Calif.: General construction, M. FISHER, San Francisco, Calif., $118,454; plumbing, Wm. P. SCOTT, San Francisco, Calif., $5565; wiring and fixtures, GLOBE ELECTRIC WORKS, San Francisco, $4200. Noted Dec. 4.

Mechanical Equipment—Fort Mason, Calif.—Bids will be received until 11 a.m., Dec. 28, by George McK. Williamson, Quartermaster Corps, U. S. A., for electrical work at Army Supply depot, Fort Mason, Calif.

Rock Removal—San Francisco, Calif.—Bids will be received until 11 a.m., Jan. 15, by Lt.-Col. Thomas H. Rees, Corps Engrs., U. S. A., Custom House, San Francisco, for removing Centisima Rock, near entrance to San Francisco Bay, Calif.

Outlet Pipes—Los Angeles, Calif.—Bids will be received until 2 p.m., Dec. 29, by the U. S. Reclamation Service, Los Angeles, Calif., for furnishing outlet pipes for Miniature Dam, North Platte project, Neb.

Hardware—Panama—Bids will be received until 2:30 p.m., Dec. 30, by Maj. F. C. Boggs, Gen. Pur. Officer, Isthmian Canal Commission, Washington, D. C., for furnishing a quantity of hardware, for use in the administration building at Balboa.

Cutter and Ladder Head Parts for Dredge, Pig Iron, Steel Locomotive Tires, Etc.—Panama—Bids will be received until 10:30 a.m., Dec. 30, by Maj. F. C. Boggs, Corps Engrs., U. S. A., for furnishing cutter and ladder-head parts for dredge, pig iron, steel, locomotive tires, copper condenser tubes, galvanized conduit, rock salt, lime, calcium carbide, graphite, core wash, etc.

MISCELLANEOUS

★**Railway Terminal Yard**—Boston, Mass.—See item under Railways: Massachusetts.

✚**Channel Work**—Albany, N. Y.—The contract has been awarded to TUTTLE & RAYNOR, Eastport, N. Y., by Duncan W. Peck, State Supt. Pub. Wks., Albany, for deepening and widening the channel of the Peconic River, Suffolk County, at $19,800. Noted Dec. 18.

Stable and Section House—New York, N. Y.—(Official)—Bids were received as follows, Dec. 17, by Maurice E. Connolly, Pres. Borough of Queens, Long Island City (L. I.), N. Y., for the general construction of a stable and section house for the Bureau of Street Cleaning of the borough at Ridgewood, Second Ward, at Flushing Ave., 135 ft. east of Metropolitan Ave.: Joseph Balaban & Co., $63,776; Kelley & Kelly, Inc., $70,850; Hoeffer & Shay, $88,484; Philip A. Fox & Co., $66,685; Peter Cleary, $72,487; William H. Egan, $74,303; Werner-Bartels Co., $62,287; Marble Arch Co., $73,000.

Dredging—New York, N. Y.—(Official)—Bids were received Dec. 18, by R. A. C. Smith, Comr. of Docks, Dept. of Docks, Pier A, foot of Battery Place, North River, Borough of Manhattan, for dredging in the boroughs of Manhattan, Brooklyn, Queens, The Bronx and Richmond: (a) Class 1, dredging about 300,000 cu.yd. in North River, Borough of Manhattan; (b) 115,000 cu.yd. in the East and Harlem Rivers, Boroughs of Manhattan, Brooklyn, Queens, The Bronx, and in South Brooklyn and the Borough of Richmond: Henry Du Bois Sons, (a) 13.9c. per cu.yd.; William Beard, (a) 15c.; (b) 25c.; P. Sanford Ross, Inc., Jersey City, N. J., (a) 16.3c.; (b) 28.4c.; R. G. Packard Co., (a) 19.9c.; (b) 24⅝c.; Morris & Cummings Dredging Co., (b) 25.4c.; Coastwise Dredging Co., Norfolk, Va., (a) 15.7c.; (b) 29.7c.

✚**Platforms**—New York, N. Y.—The contract has been awarded to H. HANSEN and J. H. McHUGH, 47 West 34th St., New York, for the construction of outside platforms at Bedford Ave. trolley station, Williamsburg Bridge, at $10,579. Bids were opened Dec. 11 by Arthur J. O'Keeffe, Bridge Comr.

Comfort Station—New York, N. Y.—(Official)—Bids will be received until 10:30 a.m., Dec. 30, by Cyrus C. Miller, Pres. Borough of The Bronx, for the erection of a public comfort station at 149th St. and Bergen Ave., Borough of The Bronx, except plumbing and gasfitting and heating and ventilation.

Pig Lead—New York, N. Y.—(Official)—Bids will be received until 2 p.m., Dec. 29, by Henry S. Thompson, Comr. Water Suply, Gas and Electricity, Borough of Manhattan, for 50,000 lb. of pig lead.

✚**Dredging**—Atlantic City, N. J.—The Inland Waterway Commissioner has awarded the contract for dredging two sections of the inland waterway (the Ventnor Canal near Atlantic City and the Middle Thorofare, Cape May County) to the RICKARDS DREDGING CO., Philadelphia, Penn., at a cost of about $12,000. A total of approximately 150,000 cu.yd. will be dredged.

✚**Pier Extension**—Atlantic City, N. J.—The contract for the construction of an extension to Steeplechase Pier has been awarded by the pier company to EDWARD L. BODER, Atlantic City.

Shed Extension—Hoboken, N. J.—The Hamburg-American Line will construct an extension to its steel shed at the foot of First St., Hoboken. Estimated cost, $70,000.

Coal Elevator—Elwood City, Penn.—The National Coal Co., Elwood City, will erect a coal elevator along the Baltimore & Ohio R.R. tracks.

✚**Wall**—Philadelphia, Penn.—The contract has been awarded to RICHARD WALSH, Philadelphia, for the construction of a reinforced-concrete wall on the New York Division of the Pennsylvania R.R., between Columbia and Montgomery Aves.

✚**Greenhouse**—Philadelphia, Penn.—The H. E. GRAU CO., Philadelphia, has been awarded the contract for the erection of a greenhouse, 100 by 25 ft., with a wing 84 by 25 ft., and a potting house, 22 by 17 ft., on Meadowbrook Ave., west of Stenton Ave., at $23,400.

★**Asphalt Plant**—Baltimore, Md.—Official)—Bids will be received until 11 a.m., Dec. 31, by the City Register, City Hall, to furnish a one-car or equal 2000 sq.yd. asphalt plant complete, delivered f.o.b. cars, Baltimore, Md. H. K. McCay, City Engr., Baltimore.

Fire Apparatus—Baltimore, Md.—The Fire Commissioners are considering spending $63,000 for new fire apparatus. H. K. McCay is City Engr.

Dock—Baltimore, Md.—The city is considering the construction of a dock to cost about $1,000,000. H. K. McKay is City Engr.

★**Shelter Sheds**—Washington, D. C.—(Official)—Bids will be received by the Secretary of the Board of Commissioners of the District of Columbia, District Bldg., until 2 p.m., Dec. 29, for the erection of shelter sheds at the Farmers Produce Market, 12th and B Sts. The work calls for about 150,000 lb. of structural steel. Specifications may be had from Chief Clerk, Engineering Department, District Bldg.

Dock Improvement—Wilmington, N. C.—The City Council is considering improving the municipal docks at a cost of $200,000. F. F. Pillet is City Engr.

Tanks—Memphis, Tenn.—The Standard Oil Co. of Louisiana will erect five 500-gal. oil tanks at its Memphis plant.

Levee Bonds—Memphis, Tenn.—The city, Dec. 9, sold $500,000 of levee improvement bonds. J. H. Weatherford is City Engr.

Pile Protection Wall—Dayton, Ohio—Bids will be received until noon, Dec. 29, by R. P. Sebold, Dir. Pub. Ser., for 1050 lin.ft. of pile protection wall along the north side of Findlay St.

River Work—Lima, Ohio—The plans for widening, deepening and dredging the Ottawa River, prepared by the W. T. Sherman Co., Toledo, Ohio, have been approved. The cost has been estimated at $150,000. Noted Nov. 20.

Levee—Pittsfield, Ill.—The Commissioners of the Sny Levee and Drainage District, Pittsfield, are considering the construction of a levee. Estimated cost, $190,000.

Storage Shed—Milwaukee, Wis.—Wright & Bolton, Milwaukee, will erect a storage shed, to cost $10,000.

✚Dock—Two Harbors, Minn.—The Duluth & Iron Range R.R. Co. has awarded the contract to MITCHELL & McGARY, Duluth, Minn., for the construction of a steel coal dock at Two Harbors.

Ditches—Newport, Ark.—Bids will be received until Jan. 6, at the office of Jones & Campbell, Attys., Newport, by the Board of Commissioners of Overcup Slough Drainage District of Jackson and Woodruff Counties for constructing 30 miles of dredge ditches, draining 20,000 acres. The Morgan Engineering Co., Goodwyn Institute, Memphis, Tenn., is Engr.

Fire Boat—Galveston, Tex.—The city will construct a fire boat to cost $75,000. A. T. Dickey is City Engr.

Ditches—Globe, Ariz.—The Supervisors of Gila County have appropriated $10,000 for the construction of ditches for drainage along the road from Globe to Roosevelt, Ariz. F. G. Twitchell, Engr., has charge of the work.

Jetty—Vancouver, Wash.—The citizens have voted in favor of approving the plans of the Port Commissioners for improving the harbor. A 2000-ft. jetty and several dikes will be constructed. C. E. Abel is Port Comr.

Dock Bonds—Astoria, Ore.—Bids will be received in January by the city for the purchase of $200,000 in bonds for the construction of a dock.

Harbor Improvement—Longbeach, Calif.—The citizens will vote, Jan. 15, on the proposition to issue $650,000 in bonds for the improvement of the harbor. E. P. Dewey is City Engr.

Tunnel—Los Angeles, Calif.—The city has decided to make improvements to the Broadway tunnel at a cost of about $175,000. Homer Hamlin is City Engr.

Fire Apparatus—Napa, Calif.—The city will spend $12,000 for motor fire apparatus.

Wharf—Port Harford, Calif.—The Pacific Coast Ry. Co. will construct a 2700-ft. wharf. The cost has been estimated at $75,000. James Anderson, Seattle, Wash., is Ch. Engr.

Pier—Venice, Calif.—August Stutzer, Venice, has been granted a franchise by the city for the completion of the Maier Pier at the foot of Center St. About $75,000 will immediately be expended to have the pier ready by July 1, 1914.

Cable—Halifax, N. S.—(Official)—Bids will be received until 4 p.m., Jan. 15, by R. C. Desrochers, Secy. Dept. Pub. Wks., Ottawa, Ont., for 10 knots of gutta percha cable with four conductors and 14 knots of gutta-percha cable with two conductors, to be delivered at Halifax.

Drydock—Halifax, N. S.—The Department of Public Works is considering the construction of a large drydock at Halifax. R. C. Desrochers is Secy.

Coaling Plants—Quebec—(Official)—Bids will be received until noon, Jan. 7, by P. E. Ryan, Secy. Comrs. Transcontinental Ry., Ottawa, Ont., for the construction complete of six 200-ton mechanical coaling plants with sand houses at the following places in the province of Quebec: Monk, Bridge, Fitzpatrick, Parent, Doncet and O'Brien.

Vessel—Ottawa, Ont.—Bids will be received until noon, Jan. 8, by Alexander Johnston, Deputy Minister of Marine and Fisheries, Dept. of Marine and Fisheries, Ottawa, for the construction of a steel twin-screw ice-breaking steamer. The vessel will be 275 ft. long, 57 ft. 6 in. extreme breadth, 19 ft. mean draft, and 8000 indicated hp. It is to be delivered at the King's Wharf, Quebec, Que. Plans, etc., can be seen at the office of the Purchasing Agent of the Marine and Fisheries Department, Ottawa, at the offices of the Collectors of Customs, Toronto, Collingwood and Port Arthur, Ont., and at the agencies of the Department of Marine and Fisheries at Montreal, Quebec, St. John, N. B., Halifax, N. S., and Victoria, B. C.

Railway Ties, Telegraph Poles—Winnipeg, Man.—Bids will be received until Dec. 29, by the Commissioners of the Greater Winnipeg Water District for 250,000 railway ties and 3000 telegraph poles.

Docks and Terminals—Vancouver, B. C.—Plans are being prepared, it is reported, by the Department of Public Works, Ottawa, Ont., for the construction of docks and terminals on Kitsilano Island, False Creek. The cost is estimated at about $6,000,000. R. C. Desrochers is Secy.

Wharves—Victoria, B. C.—Bids will be received until Jan 15, by R. C. Desrochers, Secy., Dept. Pub. Wks., Ottawa, Ont., for the construction of wharves at Victoria.

Wharf—West Vancouver, B. C.—Plans have been submitted to the Department of Public Works, it is reported, for the construction of a wharf at 14th St., West Vancouver. The cost is estimated at $75,000. R. C. Desrochers, Ottawa, Ont., is Secy.

BUILDINGS

Boston, Mass.—Plans have been prepared by F. A. Norcross, Arch., 46 Cornhill, Boston, for the erection of a block of five-story apartment houses, 125x128 ft., costing $200,000, at Commonwealth Ave. and Naples Road, for Snider & Druker, Kimball Bldg.

Holyoke, Mass.—Bids will soon be received for the construction of the National Bank building. William B. Reid, Holyoke, and Thomas B. Boyd, 286 Fifth Ave., New York, N. Y., are the Archs.

Worcester, Mass.—J. J. Higgins, of the Builders' Exchange, and E. P. Fitzgerald, Arch., State Mutual Bldg., will erect a six-story apartment house at Woodland and Downing Sts., at an estimated cost of $150,000.

✚Worcester, Mass.—The contract for the erection of a building for the Worcester Market Co. has been awarded to the J. W. BISHOP CO., 109 Foster St. The estimated cost is $150,000. Noted Dec. 18.

★Albany, N. Y.—(Official)—Bids will be received until noon, Jan. 15, at the office of the Clerk of the Board of Supervisors, City Hall, Albany, for the erection of a County Court House on Columbia St., between Lodge and Eagle Sts.

Buffalo, N. Y.—Plans are being prepared by C. Howard Crane, Arch., 2325 Dime Bank Bldg., Detroit, Mich., for the erection of a theater, 60x150 ft., costing $100,000, for the Mark & Brock Amusement Co., Buffalo.

New York, N. Y.—(Borough of Manhattan)—Plans have been prepared by Geo. & Edward Blum, 505 Fifth Ave., for the erection of a ten-story apartment house, 100x150 ft., at Riverside Drive and 155th St., for the Strathcona Construction Co. The estimated cost is $500,000. Noted Nov. 13.

(Borough of Manhattan)—Plans have been prepared by Wallace & Goodwillie, 346 Fourth Ave., for the erection of a five-story apartment house, at 311-17 West 89th St., for the Excelsior Holding Co., 56 West 45th St. The estimated cost is $200,000.

(Borough of Manhattan)—Plans have been prepared by Charles B. Meyers, 1 Union Sq., West, for the erection of two six-story apartment houses, 99x100 ft., at 128th St. and St. Nicholas Terrace, for the Manchester Construction Co., 223 Wooster St. The estimated cost is $250,000.

(Borough of Manhattan)—(Official)—Bids will be received in January for the erection of a 17-story office building, 47x51 x56x71 ft., at City Hall Place and Pearl St., for the Rudolph Wallach Co., 68 William St. The building will be of brick and stone. G. A. & H. Boehm, 7 West 42d St., are the Archs.

(Borough of Brooklyn)—Preliminary plans are being prepared by Trowbridge & Ackerman, Archs., 62 West 45th St., New York, for the erection of a 10- or 12-story building, 100x200 ft., on Hanson Pl., from Green Pl. to South Elliott Pl., for the Y. M. C. A. The estimated cost is $500,000. Geo. D. Pratt is Chn. of the Bldg. Comm.

(Borough of Brooklyn)—(Official)—Bids will be received until 10:30 a.m., Dec. 30, by the Board of Health, for the erection of a brick kitchen at the Kingston Ave. Hospital.

(Borough of Brooklyn)—The Cranston Construction Co. will erect a six-story elevator apartment, 95x147 ft., at Third St. and Eighth Ave. The estimated cost is $250,000.

White Plains, N. Y.—The White Plains Theater Co. will erect a theater, costing $75,000, at Wall St. and Railroad Ave.

Atlantic City, N. J.—Simon & Bassett, Archs., are preparing plans for the erection of a theater at Virginia Ave. and the Boardwalk, for the Steel Pier Co. The building will be 100x150 ft., of fireproof construction, with seating capacity of 1600.

Bayonne, N. J.—The Directors of the Bayonne City Hospital plan to erect an addition, to cost $80,000.

Bloomfield, N. J.—The Board of Education has commissioned Charles G. Jones, Belleville, N. J., to prepare plans for a public school on Grove St. The estimated cost is $60,000.

✚Bordentown, N. J.—The contract for the erection of a bank building for the First National Bank has been awarded to F. W. VAN LOON, Philadelphia, Penn.

✚Newark, N. J.—The Third Presbyterian Church has awarded the contract for the erection of a church on Clinton Ave., to E. M. WALDRON & CO., 84 South Sixth St., Newark, at $46,551.

New Brunswick, N. J.—The Board of Freeholders plans to erect a tuberculosis hospital for Middlesex County. A site is now being selected.

Chester, Penn.—Bids will be received after Jan. 1 for the erection of the A. O. Desbong art building. The estimated cost is $75,000.

Harrisburg, Penn.—S. B. Mingle and F. O. Horting, proprietors of the Hotel Dauphin, contemplate erecting, in the rear of the present hotel, a six-story addition, and adding two stories to the present building.

Hazleton, Penn.—(Official)—Bids will be received by John C. Norton, Arch., Bryn Mawr, some time in February for the erection of a 12-story hotel, 62x190 ft. The building will be of brick, stone and reinforced concrete. Noted Dec. 11.

Mahanoy City, Penn.—The B. P. O. E. is having plans prepared by E. Z. Scholl, Arch., 31 North Sixth St., Reading, for the erection of a three-story association building, 42x125 ft., to cost about $40,000.

Philadelphia, Penn.—Plans are being prepared by the Hoffman Co., Philadelphia, for the erection of a three-story brick and terra cotta loft building at 313 Market St., for Alex. M. Bright.

Contractors are estimating on an eight-story brick and terra cotta fireproof building to be erected at 13th and Cherry Sts., for Louis Biberman & Bro., 240 Market St. Sauer & Hahn are the Archs.

John T. Windrim, Arch., is preparing plans for the erection of an eight-story office and exchange building at 17th and Arch Sts. for the Bell Telephone Co.

James Arthur, Contractor, will erect in the north east section of the city, 132 houses at an estimated cost of $287,200.

Philadelphia, Penn.—A committee representing the medical staff of the Philadelphia Hospital has recommended the appropriation of $1,000,000 for the entire reconstruction of the hospital. Dr. David Riesman, 1715 Spruce St., Philadelphia, is Chn. of the Comm.

Bids will be received after Jan. 1 by Louis H. Rush, Arch., 511 Mutual Life Bldg., Philadelphia, for the erection of a three-story brick and terra cotta building, 63x163 ft., at 5820-22-24 Germantown Ave., for the Y. W. C. A. The estimated cost is $162,000.

Wilkes-Barre, Penn.—The city will have plans prepared for the erection of a brick and stone school of 12 rooms. The estimated cost is $50,000.

✚Wilmington, Del.—The contract for the erection of three buildings for the Delaware State College for Women has been awarded to H. L. BROWN, Philadelphia, at $87,000. Noted Dec. 18.

The Building Commission of Wilmington will have plans prepared for the erection of a new city hall at an estimated cost of $1,500,000.

Huntington, W. Va.—C. K. Keen, Engr., Witherspoon Bldg., Philadelphia, Penn., has completed revised plans for the erection of a four-story office building and station, to cost about $50,000, for the American Street Ry. Co.

Rome, Ga.—(Official)—Bids will be received until Jan. 1, for the erection of a five-story hotel 112x130 ft., for the Broad Street Hotel Co. A. Ten Eyck Brown, Atlanta, is the Arch. Noted Dec. 11.

Tuscaloosa, Ala.—The report that the University of Alabama contemplated the erection of a dormitory has been officially denied. S. C. Honser is Treas. Noted Dec. 4.

✚Laurel, Miss.—The Board of Directors of the Pinehurst Hotel has awarded the contract for the erection of a new building to F. BARBER, Jackson, at $90,000.

New Orleans, La.—The Immanuel Lutheran Church has secured a site at Iberville and Dorgenois Sts., and will erect a church costing $75,000.

Louisville, Ky.—Plans have been prepared for the erection of an addition to the Seelbach Hotel. It will contain 100 rooms.

The Louisville Turngemeinde plans to erect a building costing $75,000 at Floyd St. and Broadway.

The Broadway Amusement Co. is having plans prepared by Joseph & Joseph, Archs., for the erection of a motion picture theater on the site of its present one. The estimated cost is $150,000 and it will seat about 2000 people.

Akron, Ohio—Plans are being prepared by Harpster & Bliss, Archs., Nantucket Bldg., Akron, for the construction of an eight-story and basement masonic temple, 124x127 ft. The estimated cost is $400,000.

Cincinnati, Ohio—The City Hospital Commission, Cincinnati, will readvertise the bids for the erection of the new buildings at the branch hospital, as the present bids exceed the appropriation. The general estimate is $30,401 for the administration building; $50,400 for the nurse's home; $38,763 for the dining hall; $30,671 for the reception cottage; $35,147 for the laundry and power plant; $14,781 for the detention building; $12,000 each for five bungalows; $24,000 for grading and plumbing; $10,300 for sewage drain; $1271 for outside cementing and $3742 for the smoke stack.

Columbus, Ohio—Plans have been prepared by Richards, McCarty & Bulford, Archs., Ruggery Bldg., for the construction of the club house to be erected on East Broadway for the Columbus Athletic Club. The estimated cost is $500,000. Noted Oct. 23.

Paulding, Ohio—Plans are being prepared for a Carnegie library, at Paulding. The estimated cost is $44,000.

Springfield, Ohio—Plans are being prepared by F. L. Packard, Arch., New Hayden Bld., for the construction of a memorial hall. The estimated cost is $200,000.

Evansville, Ind.—Clifford & Shopbell, Archs., will receive bids until Jan. 15, for the construction of a four-story store building, 75x150 ft., for the Lehr Realty Co.

✚Indianapolis, Ind.—The general contract for the construction of the store and office building at Washington and Illinois Sts., for the Occidental Realty Co., has been awarded to W. H. KLAUSMANN, 230 East Ohio St. The estimated cost is $225,000.

✚The general contract for remodeling the Claypool Hotel, at Illinois and Washington Sts., has been awarded to the THOMPSON, STARRETT CO., 1517 Juniata Bldg., Chicago, Ill.

Detroit, Mich.—Oscar C. Gottesleben, Archs., 724 Dime Bank Bldg., is preparing plans for the construction of a three-story and basement building, 100x200 ft., for the University of Detroit. The estimated cost is $50,000.

Bids will be received until Dec. 26, by D. H. Burns & Co., Archs., 80 East Jackson Blvd., for the construction of a 16-story and basement office building, for the David Whitney Realty Co. The estimated cost is $1,000,000. Noted Nov. 27.

Oscar C. Gottesleben, Arch., 724 Dime Bank Bldg., is preparing plans for the construction of a 14-story and basement hotel, 50x75 ft. The estimated cost is $150,000.

Jackson, Mich.—Plans are being prepared by L. H. Field, Jr., 8 Field Bldg., for the construction of a two-story and basement school, for the city. The estimated cost is $200,000.

Claire Allen, Arch., Dwight Bldg., is preparing plans for the construction of a two-story and basement school for the Board of Education, at an estimated cost of $100,000. George M. Scotford is Secy. of the Board.

Chicago, Ill.—L. G. Hallberg & Co., Archs., 19 South La Salle St., are preparing plans for the construction of a four-story store and office building at Wilson and Clifton Aves for Edward K. and Francis H. Hardy. The estimated cost is $75,000.

✚Chicago, Ill.—Contracts for the construction of the school to be ereceted at Wood and Selden Sts., have been awarded as follows: Masonry, A. & E. ANDERSON, 19 S. La Salle St.; carpentry, G. REININGA, 7744 S. Carpenter St. The estimated cost is $250,000.

✚Rockford, Ill.—The general contract for remodeling the bank building for the Peoples Bank & Trust Co., has been awarded to HOGGSON BROS., 38 S. Dearborn St., Chicago.

Appleton, Wis.—Shattuck & Hussey, Archs., Chicago, Ill., will prepare plans for the Y. M. C. A. building, for which funds have been raised. Cost, $100,000.

Fond du Lac, Wis.—Bids will be received until Jan. 14, for the construction, plumbing, heating and ventilating of the school to be erected on First St. Perkins, Fellows & Hamilton, Chicago, Ill., are Archs. Cost, $50,000. Noted Nov. 20.

✚Madison, Wis.—The Wisconsin Capitol Commission has awarded the last excavation and substructure contract for the north wing of the new $6,000,000 state capitol, to GEORGE NELSON, Madison, at $16,985. The superstructure and interior work only remains to be let on the entire structure. Lewis Porter is Secy. James Otis Post, of New York, son of the late George W. Post, architect of the structure, will direct the completion of the building. Noted Dec. 11.

✚Milwaukee, Wis.—The Board of School Directors awarded following contracts for erecting a school, on Grant St., between 24th and 25th Sts., Van Ryn & De Gelleke, Caswell Block, Archs.: Carpentry, WIERDSMA & LAATSCH, $13,975; masonry, J. WABISZEWSKI, $18,500; lath and plaster, CHAS. E. BARTZ, $3318; tile, H. NIEDNER & CO., $625; sheet metal, MILLEN BROS., $1190; steel and iron, C. HENNECKE, $2450; plumbing, JAMES J. O'DONNELL, $4376; heating and ventilating, INDUSTRIAL HEATING CO., $8784; electrical, H. ANDRAE, $1385; painting and glizing, HUEN BROS., $1347; excavating, F. C. HAASA, $5890; cut stone, JOHN HANERT, $3880; marble, BREIDSTER MARBLE CO., $2467.

The Milwaukee Athletic Club, Wells Bldg., will erect a club house in the down town section of the city. The estimated cost is $500,000. Julius Simon is Chn. of the Building Committee.

The Goodyear Rubber Co. will erect an office building on the site of the building which was recently destroyed by fire.

✚Wauwatosa, Wis.—The general contract for the construction of the Milwaukee County Tuberculosis Sanitarium at Wauwatosa, has been awarded to the AMERICAN CONSTRUCTION CO., Milwaukee. Noted Sept. 11.

Sioux City, Iowa—The County Commissioners will erect a six-story court house, 150x150 ft., on the site of the present court house at Sioux City. The estimated cost is $1,000,000.

Duluth, Minn.—Bids will be received in January, by C. E. Bronson, Clk., State Normal School, for the construction of a three-story and basement addition to the Normal School. The estimated cost is $70,000.

Minneapolis, Minn.—The Minneapolis Board of Education has decided to erect three new schools. The estimated cost is $200,000.

✚Glendive, Mont.—BELL & FRADSEN, Savage, Mont., have been awarded contract for construction of school for district No. 1, at $41,300. Other bidders were: Piper Construction Co., Billings, Mont., $42,942; Bismarck Construction Co., Bismark, N. D., $43,750; W. M. O'Brien & Co., St. Paul, Minn., $43,843; Gagnon & Co., Billings, Mont., $43,965; Clearman & Co., St. Paul, Minn., $43,843; Chas. Skooglum, Minneapolis, Minn., $46,845; Frank Ferguson, Sheridan, Wyo., $47,398.

Kansas City, Mo.—Bids are being received by L. G. Middough, 512 Kansas City Life Bldg., for an eight-story hotel at 11th and Central St., for E. R. Cooper, Lankersheim Hotel, Los Angeles, Calif. The estimated cost is $300,000.

✚Houston, Tex.—The contract for the construction of the dormitory at the Willard M. Rice Institute, has been awarded to the JAMES STEWART CO., at $103,800.

Mesa, Ariz.—The city will erect a $65,000 school. Lescher & Kibbery, Bank of Arizona Bldg., Phoenix, Ariz., are the Archs.

Phoenix, Ariz.—Mayberry & Parker, Pacific Electric Bldg., Los Angeles, have been commissioned to prepare plans for a four-story and basement reinforced-concrete office building, on Central Ave., for Dwight B. Heard and associates. It will be 60x150 ft., with concrete walls and floors.

Yuma, Ariz.—A $45 000 school is to be erected in this city. Royal W. Lescher and J. Rinker Kibbery, Bank of Arizona Bldg., Phoenix, Ariz., are the Archs.

✚Cheney, Wash.—The contract for the construction of the main building at the Cheney Normal School has been awarded to BARTLETT, ROTH & CO., Portland, Ore., at $267,025. Noted Dec. 18.

Seattle, Wash.—Plans recently prepared by Henry Hall Johnson & Co., of Seattle, for a five-story building on Third and First Aves. North have been approved by the owners of the site. R. S. Ford and Lee M. Ford. The structure will be used as an office building, and bank building for the Great Falls National and Commercial Trust and Savings Banks.

A bond issue of $650,000 has been voted for new school buildings. Edgar Blair, School Arch., 901 Seventh Ave., will prepare plans at once. Of this sum, $400,000 will be spent on the Ballard High School at 65th and Ninth Ave., and $200,000 for repairs to present school buildings throughout the city.

✚The contract for the construction of the synagogue at 17th Ave. and Yesler Way, for Chevra Bikur Cholum ,has been awarded to the WESTERN ENGINEERING CO., at $40,000. B. Marcus Priteca, Empire Bldg., is Arch.

Tacoma, Wash.—A hotel to be known as the Hotel Withrop is to erected at south 12th and Pacific Ave. It will be a 17-story structure and cost at least $150,000. L. W. Pratt, Pres. of the National Realty Association, is interested in the project.

✚Portland, Ore.—W. P. Crawford, Vancouver, Wash., has awarded to JAMES P. TAYLOR, 707 Couch Bldg., Portland, the contract for construction of the two-story and basement warehouse at 15th and Hoyt Sts. Building will be reinforced concrete, and cost aproximately $40,000. P. Chappell Browne is Arch.

Inglewood, Calif.—Bids will be called for in about a month for the construction of the $150,000 high school building for this city. Norman F. Marsh, 214 Broadway Central Bldg., Los Angeles, is the Arch.

✚Long Beach, Calif.—J. W. DAVIDSON has been awarded contracts for the erection of three new school buildings, at $79,718. A. Burnside Sturges is the Arch.

Los Angeles, Calif.—Bids will be received about Jan. 1, by S. Tilden Norton and F. H. Wallis, Archs., 604 Title Insurance Bldg., for the construction of the Greek Theater in Griffith Park to cost about $125,000. It will be of reinforced concrete, 400x200 ft.

✚Los Angeles, Calif.—The WESSELNE MARBLE & TILE CO., H. W. Hellman Bldg., has been awarded a contract at $70,000, for the marble and tile work in the 12-story bank and

office building being erected at Sixth and Spring Sts., for the Merchants' Fireproof Building Co. Wm. Curlett & Son Title Insurance Bldg., are the Archs. Noted Oct. Oct. 23.

The Commercial Fireproof Building Co. will build a 12-story and basement bank and office building at Fifth and Spring Sts. It will cost about $1,000,000. Parkinson & Bergstrom, Security Bldg., are the Archs.

Los Angeles, Calif.—The Central & Pacific Improvement Co., 1914 South Main St., will erect a seven-story and basement steel hotel at Pico and Main Sts. E. H. Dorr is preparing the plans.

The Odd Fellows' Temple Association will erect a temple at 12th and Flower Sts., estimated to cost $150,000. Morgan, Walls & Morgan, 1136 Van Nuys Bldg., are the Archs.

Norwalk, Calif.—The State has purchased 316 acres at Norwalk, and will spend about $200,000 for a state hospital for the insane. G. B. McDougall is State Arch., Sacramento, Calif.

Oakland, Calif.—M. & B. Cianciarulo are having plans prepared for a seven-story steel frame building extending from Broadway to Telegraph Ave. Wm. Wiled, Albany Bldg., is Arch. E. L. Cope, 68 Post St., San Francisco, is Consulting Engr.

Palms, Calif.—Dennis & Hewitt, Archs., Fay Bldg., Los Angeles, are preparing plans for the erection of a school building for Palms, estimated to cost $45,000.

San Diego, Calif.—Eugene M. Hoffman, Arch., is preparing plans for the erection of a four-story building at Broadway and Eighth Sts. for Crane Bros., Carnegie Apartments. The cost is estimated at $100,000.

San Francisco, Calif.—G. A. Landsburgh, Arch., 709 Mission St., is preparing plans for the erection of a three-story and basement club building to be constructed at Van Ness Ave. and Post St. The estimated cost is $75,000.

San Francisco, Calif.—The Directors of the Panama Pacific Exposition Co. have awarded the contract to DYER BROS., Golden West Iron Works, 17th and Kansas Sts., at $138,518 for furnishing, fabricating and erecting structural steel and cast-iron work for the main Entrance Tower for the Panama-Pacific International Exposition Co. Noted Dec. 18.

San Francisco, Calif.—Bids will be received until Jan. 6, by Foulkes & Hogue, Archs., Portland, Ore., for the construction of the Oregon building at the Panama-Pacific Exposition.

The Board of Public Works has awarded a contract to R. RINGROSE at $62,187, for the construction of the Marshall school. Noted Nov. 27.

Ventura, Calif.—It is reported that the state will erect a home for girls at Ventura estimated to cost $240,000. G. B. McDougall, Sacramento, is the State Arch.

Vancouver, B. C.—R. C. Desrochers, Secy. Dept. of Public Works, will receive bids until Dec. 29 for erection of the Immigration Detention Hospital Building at Vancouver.

INDUSTRIAL NOTES

A Reunion—The eastern offices of the Koehring Machine Co. held a banquet at the Engineers' Club in Philadelphia, on Dec. 10, at which the discussion was critical in its nature. Suggestions by users of the Koehring mixers were presented and thoroughly discussed. It is the aim of the Koehring Co. to embody in its equipment, any suggestions which will either reduce labor costs for the contractor, improve the operation of the machine, lessen the labor of the operator, or tend to lengthen the life of the equipment.

Another banquet was held the following evening at the Vendig Hotel. Mr. Ward, of the Lee T. Ward Co., the Philadelphia representative of the company, spoke on the "Loss of an Order." G. E. Hillsman, of Chicago, spoke of "Service." "The Relationship of the Salesman to the Home Office" was the subject of the address given by O. Twitchell, of Philadelphia. C. T. Topping, of Pittsburgh gave some suggestions on the "Handling of Shipments." H. B. Trevor, of Rochester spoke on "Some Methods of Getting Orders." "Cooperation" was the subject of the address of R. E. Brooks, the New York City representative of the Koehring Co. After giving a talk on "Sincerity," W. W. Williams, of Columbus, Ohio, presented Philip Koehring with a loving cup, as an expression of esteem from his agents.

The Detroit City Plan and Improvement Commission announces that it will institute a competition for the selection of an architect to design and supervise the construction of a fountain to be erected in Belle Isle Park, city of Detroit, to be known as The James Scott Fountain. The sum available for the work is $350,000. The commission invites architects who desire to compete to send their names, addresses and qualifications as to experience and training to Prof. E. J. A. Duquesne, Robinson Hall, Harvard University, Cambridge, Mass., before noon, Feb. 1, 1914. Charles Moore is Pres. and T. Glenn Phillips is Secy. of the Comn.

W. Randolph Sides, formerly connected with Board of Water Supply and Highway Department of Brooklyn, has been appointed assistant manager of the contract department of the Turner Construction Co., 11 Broadway, New York, N. Y.

Municipal Bond Sales during November increased largely. The total issue of municipal, state and county bonds November, 1913, was $38,401,000, according to the "Commercial & Financial Chronicle." In the corresponding month last year the amount was $9,402,000. The total bond issues for the first eleven months of 1913 aggregated $382,000,000, which establishes a new high record in municipal and state financiering. In the corresponding period last year the total issues aggregated $352,000,000.

New Harbor in Peru—Preliminary surveys have been made, according to "The Engineer," of London, for improving the port of Callao, Peru, which if carried out, will restor to that city some of its former prestige. It is planned to build a breakwater from La Punta to San Lorenzo, thus providing a fine harbor, already land-locked on three sides. This breakwater would be about 4250 lineal meters, or between two and three miles long. The improvements proposed include a number of bonded warehouses, the lack of which has been felt in the past, and which will now become absolutely necessary for the increased coast trade and traffic which the opening of the Panama Canal will bring.

The Bolivian Government, according to "The Engineer," of London, is planning an extensive program of new railway construction, while a number of enterprises to be undertaken by private individuals and corporations are also in prospect. One syndicate has already obtained concessions from the Government for a new line from the capital, La Paz, to Puerto Brais or some other point in the vicinity, on the River Beni. A line from Santa Cruz or some other point on the Puerto Rojas to Puerto Suarez on the River Paraguay, where a new harbor is to be built, is contemplated, and still a third project is for a road from Potosi to Sucre, with a branch to Lagunillas or some other point between Abapo and Villa Montes. The syndicate promoting the three lines just described, has deposited £80,000 as a guarantee that the work will be completed within the specified time, and upon the terms mentioned, in the contract. The Bolivian Government agrees to issue £50,000 for each £45,000 expended by this company, the £50,000 being in the form of bonds, bearing interest of 5%, the interest being guaranteed by the Government for 20 years from the time the railroads are opened to public traffic.

According to the New Bedford, Mass., "Standard," at a meeting of the New Bedford Water Board, Nov. 4, the matter of tunnelling under the Acushnet River for a permanent supply of water to Popes Island was taken up.

In the report of William E. Foss submitted to the board at the meeting of Oct. 3 in regard to a permanent supply of water to Popes Island the following appears:

"The construction of a brick lined tunnel six feet in diameter, under the channel, in coöperation with the public service corporations, for the water pipe and the street railway, electric light and telephone cables, has also been suggested. No explorations have been made to determine the character of the material below the river bed, but if it is earth, as appears probable from the information now at hand, a tunnel of the above description 290 feet in length between the vertical shafts at each side of the channel, and having a total length of 400 feet, could be constructed under the chip channel by the pneumatic process for about $35,000.

"On account of the accessibility of the pipe line if laid in a tunnel, and the facilities for future enlargement of the pipe line if required, the construction of the tunnel would be the most satisfactory solution of the Popes Island water supply problem, provided that the public service corporations desire to coöperate in the work and bear a substantial portion of the expense, but not otherwise, as the present needs of the city can be satisfactorily provided for by the expenditure of considerably less than the amount required for the tunnel."

It was voted to request George H. Nye, City Engr., to proceed with the necessary work of investigation and preparation of plans and specifications in consultation with William E. Foss, Consult. Engr. of the Metropolitan Water Board, and report as soon as possible.

CONTRACT PRICE

Dorchester Tunnel—Boston, Mass.—Bids were received by the Boston Transit Commission, Dec. 9, for the construction of Section C of the Dorchester Tunnel, in Summer St., from Arch St. to Dewey Square, from (A) P. McGovern & Co., 65 Oliver St., Boston; (B) Rowe Contracting Co., Boston; (C) William J. Sheils, 43 Tremont St., Boston; (D) Hugh Nawn Contracting Co., 82 Savin St., Roxbury; (E) Coleman Bros., Pearl and Marginal Sts., Chelsea; (F) James J. Coughlan Co., 43 Tremont St., Boston. The item bids were as follows:

DORCHESTER TUNNEL, SECTION C, BOSTON, MASS.

	A	B	C	D	E	F
27,000 cu.yd. earth excavation, open cut	$4.25	$4.00	$4.00	$3.50	$3.70	$3.50
18,000 cu.yd. earth excavation, in tunnel	5.25	5.00	4.75	4.50	4.20	4.15
450 cu.yd. concrete masonry, removed	5.00	6.00	8.00	4.00	5.00	6.00
1600 sq.yd. concrete base, removed	0.75	1.00	0.50	0.60	0.50	0.70
5000 cu.yd. concrete, in open cut	11.00	10.50	10.00	10.50	9.00	8.90
7000 cu.yd. concrete, in tunnel	11.00	11.00	11.00	11.00	9.50	10.00
1000 cu.yd. cinder concrete	6.00	6.00	6.00	5.00	5.00	5.00
100 cu.yd. cement mortar for joints	15.00	14.00	15.00	15.00	13.00	15.00
100 cu.yd. concrete	11.00	11.00	12.00	12.00	10.00	9.00
100 cu.yd. brick masonry	18.00	17.00	18.00	20.00	16.00	16.00
200 lin.ft. 6- to 12-in. vitrified pipe	1.00	1.00	0.50	0.50	0.50	1.00
1000 lin.ft. 4- to 8-in. vitrified pipe underdrain	0.25	1.00	0.50	0.50	0.25	0.50
600 tons setting reinforcing rods, 20 tons tie rods, etc.	15.00	11.00	10.00	7.00	8.00	9.00
1000 sq.yd. portland cement mortar	0.40	0.40	0.50	0.40	0.40	0.30
40,000 sq.yd. prepared textile and asphalt	0.45	0.60	0.50	0.50	0.45	0.42
5000 sq.yd. tarred felt and pitch	0.30	0.25	0.30	0.30	0.25	0.25
5000 sq.yd. tarred felt and asphalt	0.30	0.50	0.40	0.30	0.25	0.30
Supporting, protecting buildings and other risks (lump sum)	1500.00	5000.00	2000.00	1500.00	1800.00	2500.00
Totals	$387,750	$383,170	$368,200	$347,200	$327,460	$325,150

EXAMINATION

Road Engineer—The State Civil Service Commission, Springfield, Ill., will soon hold an examination for the position of road engineer, at a salary of $2520 per year. W. R. Robinson is Secy. of the Comn.

INDUSTRIAL NOTES

An Important Purchase of Equipment—The E. B. Leaf Co., Harrisburg, Penn., has purchased from B. B. Odell, Jr., Newburgh, N. Y., practically all of the equipment used by the Thos McNally Co., in the construction of its contract on the New York aqueduct. This consists of about 400 pieces of contractor's equipment, including steam shovel, crushers, hoisting engines, traveling crane, cars, concrete mixers, pipe lines, air compressors and other machine used on such work.

The Annual Report of Henry S. Graves, U. S. Forester, shows that more than two billion board feet of timber, with a value of $4,500,000 on the stump, were sold by the Division of Forestry last year. This is an increase of 167% over the sales of the preceding year. The larger part of the timber sold was for future cutting under contracts which will run for several years. The amount cut was a little less than 500,000,000 board feet, an increase of 15% over the cut of 1912. The sales will probably continue to increase.

The Remington Arms-Union Metallic Cartridge Co., of Bridgeport, Conn., has started work on its new Canadian plant at Windsor, Ont. The buildings are to be of the heavy type of brick, saw-tooth construction. The roofs and gutters will be entirely of Asbestosteel, a type of construction for roofs and curtain walls evolved by the Asbestos Protected Metal Co., of Beaver Falls, Penn. Asbestosteel is a combination of concrete and rectangularly corrugated sheets of asbestos protected metal.

The Lackawanna Bridge Co. and the Worden-Allen Co., engineers, general contractors and steel fabricators, whose shops are at Buffalo, N. Y., and Milwaukee, Wis., announce that J. W. Cowper, vice-president in charge of the general contracting department, has removed his headquarters from New York City to 612 Fidelity Bldg., Buffalo. The branch office at 2 Rector St., New York, J. P. Nicholas, Vice-Pres.; Cecil Martin, resident manager, Commercial National Bank Bldg., Chicago; H. C. Felver, resident manager, Houghton, Mich., and the offices at the shops will be maintained as heretofore. These companies make a specialty of designing and constructing complete fireproof buildings and other structures, particularly manufacturing plants, in addition to their regular steel fabricating and stock business.

During the year 1913 the railways of Canada have had in hand, in one stage or another, fully six thousand miles of new construction. By June 30 last, when the year for railway statistics closed, between 1800 and 2000 miles had been taken into operation as finally completed, and since that date there has been immense activity. Including lines which have been surveyed, lines for which the contracts have been let, and lines for which the contracts have been completed, the total will run into the extraordinary figure quoted. At present the Canadian Pacific has well over 1000 miles in hand, the Canadian Northern not far short of 2000, and the Grand Trunk Pacific about 1000, while there also is to be considered the 500 miles of the Hudson Bay Railway and the National Transcontinental, which now is nearing its completion. The present activity in construction work constitutes a record.—"The Contract Record."

Wireless for Fire Fleet—Officers of the New York Fire Department will witness a demonstration of a new wireless telegraph service for use by the department in interchanging messages between Fire Headquarters at East 67th street and one of the city's fireboats, to be held Dec. 23. A demonstration of the new type of fire-alarm box, invented by two of the Commissioner's experts as a means of breaking up a long standing monopoly in the manufacture of such boxes, has also been arranged. The department's guests will be shown how the new type of box relays an alarm even after a break has occurred in the alarm circuit.

Foreign Trade Opportunities—The Consular and Trade Reports announce the following foreign trade opportunities. Correspondence regarding the same should be addressed to the Bureau of Foreign and Domestic Commerce, Washington, D. C., or to the bureau's branch office in New York, Room 337, United States Custom House, stating the number of the item referred to:

No. 12,223. Dredging Machinery—Supplementing a previous report an American consul writes that there is an opportunity for an extensive business in the country in which he is located for American manufacturers of dredging machinery.

No. 12,224. Steel Pipes for Water System—The American consulate general at Ottawa, Canada, reports that tenders have been called for steel pipes for the Ottawa water system to be received until Feb. 3, 1914, including about 42 miles of welded steel pipe, 65 in. internal diameter; about 32 miles welded steel pipe, 58 in. diameter, and about 11 miles welded steel pipe, 51 in. diameter.

No. 12,226. Pier Construction—The American consul at Mersina, Turkey, reports that the Governor General of the Province of Adana, Turkey, has called for public tenders for building a pier of masonry or metal work at the port of Mersina.

No. 12,229. Machinery for the Manufacture of Lead Pipe—A report from an American consular officer states that a business man in South Africa, who is contemplating the establishment of an industry for making lead pipes, composition pipe, lead traps, bends, etc., has applied for catalogues and full information as to cost of machinery.

No. 12,230. Cement Gun—A report from an American consular officer in a European country states that a local business man desires to be placed in communication with American manufacturers of concrete blowing machines which mix cement and water in stated proportions and blow or squirt cement after the fashion of a so called cement gun.

No. 12,234. Railway Material—Firms of good reputation are now permitted to make direct offers for supplies required by a branch of a government railway in a foreign country. This concern places orders amounting to $700,000 annually. An American consular officer writes that the following is a list of the articles required: Iron, steel, copper, tin, lead, brass, bronze, zinc, lime, cement, gas pipes, gas engines, boilers, locomotives, small cars, tools, corrugated iron, pumps, lubricants, carriages, bridge-machine tools, fire bricks, roadbed materials, etc.

No. 12,236. Refrigerating Plants—An engineering and supply company in Canada, which furnished references, informs an American consular officer that it desires to be put in touch with American manufacturers of refrigerating plants suitable for dairies, butcher shops, hotels, apartments, and domestic purposes.

No. 12,242. Metallurgical Goods—A commission merchant in a French city interested in the sale of general supplies for railways, street-car lines, army and navy equipment, and other public works informs an American consul that he wishes to correspond with American manufacturers desiring an agent in the city in which he is located.

Growth of New York City—According to recent figures, the population of New York is increasing six times as rapidly as that of London, and if this ratio continues, it will, within a few years, be the largest city in the world.

CONTRACT PRICES

Mystic Sewer—Boston, Mass.—Bids were received Nov. 19, by the Metropolitan Water and Sewerage Board for the construction of Section 69, New Mystic Sewer, North Metropolitan System, Contract 110, from (A) Coleman Bros., Boston; (B) G. M. Bryne, 166 Devonshire St., Boston; (C) Falvey & Kelley, Dorchester; (D) M. Russo & Son, 249 North St., Boston. The item bids were as follows:

MYSTIC SEWER, CONTRACT 110, SECTION 69, BOSTON, MASS.

	A	B	C	D
2300 lin.ft. earth excavation and refilling in trench and embankment for 42-in. sewer	$12.00	$13.00	$8.00	$11.00
2669 lin.ft. earth excavation and refilling in trench and embankment for 36-in. sewer	26.00	25.00	18.00	13.50
80 cu.yd. brick masonry in manholes and special structures	17.00	18.00	16.00	17.00
3250 cu.yd. concrete masonry in trench and special structures	9.00	8.50	9.00	9.00
8000 lin.ft. spruce piles in place	0.40	0.40	0.50	0.40
Totals	$130,804	$128,890	$100,972	$95,141

★**Outfall Pressure Tunnel**—Newark, N. J.—Bids were received Dec. 16, by the Passaic Valley Sewerage Commission for the construction of Section 3 of the outfall pressure tunnel beneath a portion of Jersey City, Bayonne and Newark Bay, from (A) Kingsbridge Contracting Co., (B) William Horne Co., 37 East 28th St., New York, N. Y.; (C) John F. Shanley, Jr., Newark; (D) Keystone State Construction Co., Philadelphia, Penn.; (E) Mason & Hanger Co., Van Cortlandt Park and 242d St., New York, N. Y.; (F) Booth & Flinn, Ltd., Pittsburgh, Penn.; (G) Carter Construction Co., 42 Broadway, New York, N. Y. The item bids were as follows:

OUTFALL PRESSURE TUNNEL, SECTION 3, NEWARK, N. J.

	A	B	C	D	E	F	G
200 lin.ft. earth or rock excavation and refill in tunnel for 144-in. sewer	$100.00	$75.00	$90.00	$70.00	$80.00	$127.00	$95.00
6020 lin.ft. earth or rock excavation and refill, in tunnel for 144-in. sewer	89.00	77.00	80.00	80.00	80.00	103.00	95.00
3000 lin.ft. earth or rock excavation and refill, in tunnel for 144-in. sewer	50.00	77.00	82.00	85.00	80.00	103.00	125.00
Earth or rock excavation for effluent controlling chamber, Newark Bayard Bayonne Shafts, (lump sum)	150,000.00	170,000.00	200,000.00	190,000.00	239,000.00	150,000.00	175,000.00
Earth or rock excavation for two shafts	7500.00	35,000.00	10,000.00	30,000.00	40,000.00	1.00	42,500.00
25,000 cu.yd. concrete masonry in effluent chamber, etc.	9.00	9.75	8.50	10.00	9.50	9.00	11.90
8000 cu.yd. concrete masonry in shafts and tunnel	6.50	9.75	10.00	11.00	9.50	9.00	14.00
40,000 lb. steel reinforcement of concrete, in place	0.06	0.06	0.06	0.06	0.04	0.04	0.05
8000 lin.ft. timber piles for effluent controlling chamber, in place	0.60	0.75	0.60	1.00	0.35	0.30	0.75
Totals	$1,327,480	$1,379,690	$1,417,300	$1,445,000	$1,478,500	$1,634,061	$1,771,900

CONTRACTS TO BE LET

Dam Construction

Hartford, Conn.

In connection with the additional water supply of Hartford, the Board of Water Commissioners of that city expect to receive bids in the early spring for the construction of two dams and a small dike which will enclose the Nepaug reservoir, about 15 miles west of Hartford. Contract plans and specifications are not yet complete, and this notice is given now only because this may be the last favorable opportunity for contractors to see the ground uncovered before bids are opened. The work in Contract 5 includes a masonry dam about 130′ high and containing about 70,000 cu. yds. of masonry and an earth dike containing about 26,000 cu. yds. of earth. The work in Contract 6 includes an earth dam containing about 225,000 cu. yds. of earth and 8500 cu. yds. of concrete in core wall and chambers. Bids for these contracts probably will be received simultaneously. Preliminary general plans, subject to revision may be consulted and general information may be obtained by interested contractors at the office of the Chief Engineer, Caleb Mills Saville, Pilgard Building, Hartford, Conn. Neither plans nor specifications are ready as yet for delivery to contractors.

BOARD OF WATER COMMISSIONERS,
By FRED D. BERRY, Secretary.
CALEB MILLS SAVILLE,
Chief Engineer.

December 15, 1913.

Tenders for Steel Pipes

City of Ottawa, Dominion of Canada.

Sealed tenders in duplicate addressed one copy to the City Clerk, City of Ottawa, Canada, and the other to Sir Alex. Binnie Son & Deacon, St. Stephens House, Westminister, London, England, and endorsed "Tenders for steel pipes" will be received until 4 P.M. on Tuesday the 3rd day of February, 1914, for about forty-two miles of steel pipe, fifty-four inches internal diameter, about thirty-two miles of steel pipe fifty-eight inches internal diameter, and about eleven miles of steel pipe, fifty-one inches internal diameter.

Forms of tender and specification may be obtained from Sir Alex. Binnie Son & Deacon, St. Stephens House, Victoria Embankment, London S. W., or from the City Engineer of Ottawa, Canada, on and after the fifteenth on receipt by them of a cheque to the value of five hundred dollars made out to the City Treasurer of the City of Ottawa, Canada, which sum will be returned on receipt of a bona fide tender.

The lowest or any tender is not necessarily accepted.

No tenders will be considered except from actual manufacturers capable of supplying the whole of the pipes within a period of two and a half years from the date of acceptance of the tender.

Dated December 4th, 1913.

SIR ALEX. BINNIE SON & DEACON,
Engineers in Chief,
St. Stephens House,
Westminister, London.

Asphalt Plant

DEPARTMENT OF PUBLIC IMPROVEMENTS.
OFFICE OF CITY ENGINEER.
Baltimore, Md., December 17, 1913.

Sealed proposals, addressed to the Board of Awards, care of the City Register, will be received by the City Register, at his office, City Hall, until 11 A.M. Wednesday, December 31st, 1913, to furnish a one car or equal, 2000 square yards, asphalt plant complete, delivered f.o.b. cars Baltimore, Md. Specifications and proposals sheets will be furnished upon application at this office.

The Board of Awards reserves the right to reject any and all bids. A certified check of the bidder on a clearing-house bank, drawn to the order of the Mayor and City Council of Baltimore, for the sum of $1000.00 must accompany each bid.

H. K. McCAY,
City Engineer.

Approved:—
JAMES H. PRESTON,
President Board of Awards.

Passaic Valley Sewerage Commissioners

NOTICE TO CONTRACTORS

Notice is hereby given that the Passaic Valley Sewerage Commissioners have designated Tuesday, the sixth day of January, nineteen hundred and fourteen, at two o'clock in the afternoon, as the time when they will meet at their usual place of meeting, Essex Building, Clinton Street, Newark, New Jersey, to receive proposals in writing, for the construction of Section 12 of the Main Intercepting Sewer, in Township of Acquackanonk and City of Passaic, in the County of Passaic, New Jersey.

Particulars that may enable Contractors to judge of the character of the work are given below:

APPROXIMATE QUANTITIES
Section 12

Item 1.—Earth excavation and Refilling, in trench, for 108-inch sewer....	6,000 linear feet
Item 2.—Concrete Masonry, in trench, Portland cement mortar	11,000 cubic yards
Item 3.—Brick Masonry, in manholes, laid with Portland cement mortar, and appurtenant work	100 cubic yards
Item 4.—Rock Excavation, in trench.....	1,000 cubic yards
Item 5.—Timber piles, in place.....	30,000 linear feet.
Item 6.—Rip Rap, in place.....	10,000 long tons
Item 7.—Steel for Concrete reinforcement, in place	30,000 pounds
Item 8.—Railroad Crossing, including special steel and timber sheeting for trench excavation, bracing and support of masonry arch, reinforced concrete struts, tc.....	Lump Sum

Drawings, form of contract and specifications, and blank form for proposal may be obtained at the Commissioners' office from William M. Brown, Chief Engineer.

The Commissioners reserve the right to reject any or all bids.

PASSAIC VALLEY SEWERAGE COMMISSIONERS.
JOHN S. GIBSON, Clerk,
December 2, 1913.

Albany County Court House

Sealed proposals will be received at the office of the Clerk of the Board of Supervisors, City Hall, Albany, N. Y., until 12 o'clock noon, January 15th, 1914, for the erection and completion of the general construction works of a new Court House for the County of Albany, N. Y., to be situated on the south side of Columbia Street between Lodge and Eagle Streets, in the City of Albany, New York.

Plans and specifications may be seen at the office of the Clerk of the Board at the City Hall, Albany, N. Y., or at the office of Hoppin & Koen, Architects, 244 Fifth Avenue, New York City.

Contractors desirous of obtaining copies of the plans and specifications for the purpose of estimating, may do so by applying either in person or in writing, to the above Architects who will loan them copies of specifications and give them an order on a blue print firm to whom the original tracings will be loaned.

Upon receipt of such order, a set of prints will be immediately forwarded to contractor, who will pay printer for cost of prints. No refund will be made for return of prints.

Dated, December 17th, 1913.

HEZEKIAH J. WINNE,
PETER FRINKS,
JOHN F. HYATT,
THOMAS WAREING, JR.,
CHARLES B. PLUMLEY,
Committee on Public Buildings of Albany County Board of Supervisors.

Water Improvements

NOTICE TO CONTRACTORS

Coatesville, Pa.

(Note Change in Date)

Sealed proposals addressed to the President of the Council, Coatesville, Pa., will be received by the Borough Council until Thursday, January 15, 1914, at 8 p.m., and opened immediately thereafter for the construction of the following work in connection with a new water supply for the Borough of Coatesville.

Contract A—A reinforced concrete dam and reservoir.
" B—A slow sand filter plant.
" C—13,900 feet of 18" conduit.

Bids will be received on each subdivision of the work.

Each proposal must be accompanied by a certified check made payable to the Treasurer of the Borough without condition, for ten per cent. (10%) of the price bid.

Plans and specifications can be seen at the Borough Hall, and can be seen and secured at the office of the Consulting Engineer, 50 Church Street, New York, on or after December 10th, 1913.

The right is reserved to reject any or all bids or to accept that one which in the opinion of the Borough Council is for the best interest of the Borough.

The following deposits must accompany request for plans and specifications, to be returned to those presenting bona fide bids or to those who return the plans and specifications in good condition by January 15, 1914.

Contract A—$15.00.
" B— 10.00.
" C—None.

By order of the Borough Council.

A. CARMICHAEL, M. D.
President.

ALEXANDER POTTER,
Consulting Engineer.

P. R. BAKER,
Borough Secretary.

OFFICE OF THE COMMISSIONERS, DISTRICT OF COLUMBIA, Washington, December 12, 1913.—Sealed proposals will be received at the office of the Secretary, Board of Commissioners, Room 509, District Building, until 2 o'clock P.M., December 29, 1913, for the erection of Shelter Sheds at the Farmers' Produce Market, 12th and B streets, N. W., Washington, D. C., involving about 150,000 pounds of structural steel. Blank forms of proposals, specifications and all necessary information may be obtained from Chief Clerk, Engineer Department, Room 427, District Building, Washington, D. C. A deposit of $5 is required to guarantee return of plans and specifications. OLIVER P. NEWMAN, FREDERICK L. SIDDONS, CHESTER HARDING, Commissioners, D. C.

U. S. ENGINEER OFFICE, Dallas, Tex., Dec. 19, 1913.—Sealed proposals for constructing and erecting two pairs of steel lock gates will be received here until 12 M., Jan. 19, 1914, and then publicly opened. Information on application. T. H. JACKSON, Maj., Engrs.

OFFICE OF THE COMMISSIONERS, D. C., DECEMBER 19, 1913.—SEALED PROPOSALS will be received at this office, Room 509, District Building, until 2 o'clock P.M. on January 2, 1914, for the construction of Sewers in the District of Columbia, involving the construction of 9,720 linear feet of pipe sewers, 10 inches to 18 inches diameter and of 1,435 linear feet of 5' 0" x 5' 5" concrete sewer. Forms of proposals, specifications and necessary information may be obtained from the Chief Clerk, Engineer Department, Room 427 District Building, Washington, D. C. OLIVER P. NEWMAN, FREDERICK L. SIDDONS, CHESTER HARDING, Commissioners, D. C.

OFFICE, CONST. Q. M. FORT HUACHUCA, ARIZ., Dec. 20, 1913.—Sealed proposals, in triplicate, will be received here until 10 a.m., Jan. 9, 1914, and then opened for furnishing all materials and labor and constructing complete, one double set of captains' quarters, including plumbing and electric wiring, and a double blacksmith shop at thrs post. Plans and specifications upon application to the undersigned accompanied by deposit of $10 to insure return of same. E. S. WALTON, Const. Q. M.

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., December 9, 1913.—Sealed proposals will be received at this office until 3 p.m., Dec. 30, 1913, and then opened for the installation complete of a hydraulic plunger lift in the United States post office at Hartford, Conn., in accordance with drawing and specification, copies of which may be had at this office in the discretion of the Supervising Architect. O. Wenderoth, Supervising Architect.

FORT HANCOCK, N. J., December 10, 1913.—Sealed Proposals in triplicate will be received here until 12 M January 14, 1914, and then opened, for Steam Heating Plant. Information furnished on application. Envelopes containing proposals should be indorsed, "Proposals for Heating Plant" and addressed to QUARTERMASTER.

U. S. ENGINEER OFFICE, Galveston, Texas, December 15, 1913.—SEALED PROPOSALS for the construction and delivery of two (2) wooden hull hydraulic dredges SAM HOUSTON and SAN JACINTO, will be received at this office until 12 M., January 14, 1914, and then publicly opened. Information on application. C. S. RICHE, Lt. Col., Engineers.

U. S. ENGINEER OFFICE, Wheeling, W. Va., Dec. 16, 1913.—Sealed proposals for furnishing and erecting steel lock gates and bear-trap leaves for Dam No. 28, Ohio River, will be received at this office until 11 a.m. (Eastern time), Jan. 16, 1914, and then publicly opened. Information on application. J. P. JERVEY, Major, Engrs.

U. S. ENGINEER OFFICE, Cincinnati, O., Dec. 15, 1913.—Sealed proposals for construction of two steel flatboats Nos. 10 and 11 will be received at this office until 2 p.m., January 14, 1914, and then publicly opened. Information on application. H. JERVEY, Lt. Col., Engrs.

U. S. ENGINEER OFFICE, Louisville, Ky., December 15, 1913.—Sealed proposals for a Steel Pump Boat, will be received here until 12 noon, Central Time, January 15, 1914, and then publicly opened. Information on application. J. C. OAKES, Major, Engrs.

DEPARTMENT OF THE INTERIOR, WASHINGTON, December 13, 1913.—Sealed proposals, in duplicate, will be received at this Department until 2 p.m., Friday, January 9, 1914, and then opened, for remodeling the power plant of the Government Hospital for the Insane, Anacostia, D. C., taking in part payment the old machinery now operating same, in accordance with plans and specifications for the work, copies of which may be obtained on application to the chief clerk of the Department. The right is reserved to reject any and all bids, or to accept or reject any part thereof in the discretion of the Department. Proposals should be securely enveloped, marked "Proposal for remodeling power plant, Government Hospital for the Insane" and addressed to the Secretary of the Interior. LEWIS C. LAYLIN, Assistant Secretary.

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., September 16, 1913.—Sealed proposals will be opened in this office at 3 p.m., January 27, 1914, for the construction complete (including mechanical equipment and approaches) of the United States post office and courthouse at Clarksdale, Miss. Three story and basement building; ground area, 5,200 square feet; first floor fireproof; stone and brick facing; composition roof. Drawings and specifications may be obtained from the custodian of site at Clarksdale, Miss., or at this office, in the discretion of the Supervising Architect, O. WENDEROTH, Supervising Architect.

DEPARTMENT OF THE INTERIOR, U. S. RECLAMATION SERVICE, Washington, D. C., December 15, 1913.—Sealed proposals will be received at the office of the United States Reclamation Service, Boise, Idaho, until 2 o'clock p.m., January 20, 1914, for furnishing about 490.00 pounds of steel reinforcement bars. For particulars address the United States Reclamation Service, Boise, Idaho, or Washington, D. C. A. P. DAVIS, Acting Director.

DEPARTMENT OF THE INTERIOR, U. S. RECLAMATION SERVICE, Washington, D. C., December 15, 1913.—Sealed proposals will be received at the office of the United States Reclamation Service, 408 Comonwealth Building, Denver, Colorado, until 10 o'clock A.M., January 15, 1914, for furnishing 250,000 barrels of Portland cement f.o.b. cars at the works of the bidder. For particulars address the U. S. Reclamation Service, Washington, D. C., or 408 Commonwealth Building, Denver, Colorado. A. P. DAVIS, Acting Director.

DEPARTMENT OF THE INTERIOR, U. S. RECLAMATION SERVICE, Washington, D. C., December 15, 1913.—Sealed proposals will be received at the office of the United States Reclamation Service, Great Falls, Montana, until 2 o'clock P.M., January 20, 1914, for furnishing about 750,000 pounds of steel reinforcement bars. For particulars address the United States Reclamation Service, Washington, D. C., or Great Falls, Montana. A. P. DAVIS, Acting Director.

U. S. ENGINEER OFFICE, Charleston, S. C., December 1, 1913.—Sealed proposals for dredging in Winyah Bay, S. C., will be received at this office until noon, December 31, 1913, and then publicly opened. Information on application. G. P. HOWELL, Major, Engineers.

U. S. ENGINEER OFFICE, Cincinnati, O., Dec. 10, 1913.—Sealed proposals for reconstruction, in concrete, of two Ice Piers in the Ohio River at Gallipolis, Ohio, will be received here until 2 p.m., Jan. 9, 1914, and then publicly opened. Information on application. H. JERVEY, Lt. Col., Engrs.

Barge Canal Work

STATE OF NEW YORK

OFFICE OF SUPERINTENDENT OF PUBLIC WORKS

Albany, December 8th, 1913.

NOTICE TO CONTRACTORS:—

Sealed proposals will be received by the undersigned at his office in the Capitol, at Albany, N. Y., until twelve o'clock noon of Tuesday, January 6th, 1914, at which place and hour they will be publicly opened and read:

For improving the New York State canals pursuant to the provisions of Chapter 147 of the Laws of 1903, and of the amendments thereto, as follows:

—1—

CONTRACT NO. 116.

Erie Canal—Section 7.

For constructing the substructure, superstructure and approaches of the Toll Road bridge at Station 5410 + 73, within the limits of Contract 46; and for completing the substructure and approaches and constructing the superstructure of the County Line Road bridge at Station 5700 + 75, within the limits of Contract 46.

Sheets 1 to 8 inclusive.

And

For the construction of Barge canal terminals, pursuant to the provisions of Chapter 746 of the Laws of 1911, and of the acts supplementary thereto, as follows:

—2—

TERMINAL CONTRACT NO. 14.

For constructing a dockwall and appertaining structures at Troy.

Contract Plans, Sheets 1-8.

—3—

TERMINAL CONTRACT NO. 21.

For dredging a harbor, constructing two piers, bulkhead walls, etc., in the Erie Basin at Buffalo.

Contract Plans, Sheets 1-12.

Plans may be seen and detailed specifications, engineer's estimate of quantities, proposal blanks, form of contract and bonds required and other information for proposers may be had at the office of the Superintendent of Public Works at Albany, N. Y., at the office of the Assistant Superintendent of Public Works for the Middle Division at Syracuse, N. Y., at the office of the Assistant Superintendent of Public Works for the Western Division at Rochester, N. Y., and at the canal office, Spaulding's Exchange, Buffalo, N. Y.

Copies of detailed plans or drawings may be obtained from the State Engineer and Surveyor at Albany, N. Y., upon payment to him of the cost of producing them.

Monthly estimates will be paid of ninety per centum (90 per cent.) of the work done at the contract price. Every proposal for said work must be accompanied by a money deposit in the form of a draft or certified check upon some good banking institution in the City of Albany or New York, issued by a national or State bank or trust company, in the case of terminal contracts, in good credit within the state and payable at sight to the Superintendent of Public works for five per centum (5 per cent.) of the amount of the proposal.

The person whose proposal shall be accepted will be required to execute a contract and furnish bonds within ten days from the date of notice of award delivered to him or them in person or mailed to the address given in the proposal.

Upon execution of the contract and approval of bonds, the certified check or draft will be returned to the proposer unless the same shall have been presented for collection prior to such time, in which case the amount of the deposit will be refunded by the Superintendent of Public Works.

The deposits of bidders other than the one to whom the award of contract shall be made will be returned immediately after the award has been made.

The amount of bond required for faithful performance will be ten per centum (10 per cent. of the amount of the estimated cost of the work according to the contract price, and an additional bond, known as the labor bond, in the sum of ten per centum (10 per cent.) of the amount of the estimated cost of the work according to the contract price, will be required as security that the contractor will pay in full at least once in each month all laborers employed by him upon the work specified to be done in the contract.

In the event that more than one surety company is offered as surety on said bonds, co-insurance only will be accepted.

Each proposal must be addressed to the Superintendent of Public Works, Albany, N. Y., and must be endorsed on the envelope with the name of the construction for which the proposal is made.

Award, if made, will be made to the person or persons whose proposal shall be lowest in cost to the State for doing the work, and which shall comply with all provisions required to render it formal. Before any award shall be made the lowest bidder will be required to satisfy the Superintendent of Public Works of his ability to provide suitable equipment and materials for the proper performance of the work.

The right is reserved to reject all proposals and readvertise and award the contract in the regular manner if, in the judgment of the undersigned, the interests of the State will be enhanced thereby.

DUNCAN W. PECK,
Superintendent of Public Works.

⁂

Prospals for Electric Machinery and Drainage Canal Work

SEWERAGE AND WATER BOARD,

New Orleans, Nov. 28th, 1913.

Separate sealed proposals will be received by the Sewerage & Water Board, Room 508, City Hall Annex, New Orleans, La., up to 12 o'clock noon, Friday, January 30th, 1914, for Contract 59-D—Electric Machinery, and Contract 60-D—Wood Lining of Upper Protection and Claiborne Avenue Canals, the principal items of each contract being as follow:

CONTRACT "59-D."

4	600	H.P. Synchronous Motors,
7	1200	" " " "
1	1200	" " Induction Motor,
11	50	K.W. Motor Generators,
11		Motor Driven Rotary Vacuum Pumps,
9		Switchboards,
6	1200	K.v.a. Transformers,
3	750	" " " "
1	450	" " " "
1	150	K.W. Rotary Converter;
		auxiliary apparatus, consisting of starting compensators, small Transformers, Electrolytic Lighting Arresters, Etc.

CONTRACT "60-D."

Excavation	20,000 cubic yards.
Piling	210,000 linear feet.
Lumber	635,000 feet B. M.
Creosoted Lumber	435,000 " " "

Specifications with blank form of proposal may be obtained at the office of the Board. A deposit of $50.00 on Contract 59-D and $10.00 on Contract 60-D will be required for each set of plans, and will be refunded upon return of plans in good order.

A certified check on a New Orleans bank for $5,000, on Contract 59-D and for $1,000 on Contract 60-D, deposited at least one hour before the opening of bids, will be required of each bidder.

Surety company bond for 25% of gross amount of each contract will be required of successful bidder.

The right is reserved to reject any or all bids.

GEO. G. EARL, General Superintendent.

F. S. SHIELDS, Secretary.

⁂

New Addition to School

Roosevelt, N. J.

Sealed bids and proposals will be received and opened by the Board of Education of the Borough of Roosevelt, at a meeting of the Board to be held at School House No. 10, Carteret, Roosevelt, N. J., on Tuesday Evening, January 13, 1914, at 8 o'clock, for the erection and construction of a new two story eight room and auditorium brick addition to School House, No. 2, in Chrome, in the Borough of Roosevelt, N. J., according to plans and specifications prepared by William H. Boylan, Architect, and which plans and specifications can be seen at the office of George W. Morgan, District Clerk, Roosevelt, N. J., or at the office of William H. Boylan, Architect, rooms 314, 315 and 316 National Bank Building, New Brunswick, N. J. Each bid and proposal must be accompanied by a certified check on a National Bank of New Jersey, payable to the order of Charles A. Brady, Borough Collector, without any conditional endorsement whatever, for $1,500.

Copies of plans and specifications may be secured from said District Clerk or said Architect upon the deposit of the sum of $20.00, which deposit will be returned upon the return of the plans and specifications on or before Jan. 13, 1914.

Dated, Dec. 9, 1913.

Board of Education of the Borough Roosevelt,
EDWARD J. HEIL, President.
GEORGE W. MORGAN, District Clerk.

WANTS

Positions Wanted, three cents per word, each insertion
Positions Open, Employment Agencies, For Sale } five cents per word " "
Miscellaneous, ten cents per word " "
Count four words for keyed address.
All advertisements payable in advance. No abbreviated words allowed.
Copy should reach us not later than 10 A. M. Wednesday for ensuing week's issue. Answers addressed to our care, 505 Pearl St., New York, will be forwarded (excepting circulars or similar literature).
No information given by us regarding any advertiser's address. Original letters of recommendation or other papers of value should not be inclosed to unknown correspondents.
Advertisers are requested to acknowledge the replies received through this department.
Advertisers under the Employment Agencies heading agree:
To refund any registration fee on demand when no position is secured.
To credit any registration fee against the commission when position is secured

POSITIONS WANTED

Mechanical and Electrical Engineers

MECHANICAL ENGINEER, technical graduate, two years shopwork, with experience in mining, hoisting, conveying and elevating machinery, general machine design and construction work, wishes position as designer or superintendent in large manufacturing plant. P. W. 882, Eng. News.

MECHANICAL ENGINEER OR MECHANICAL SUPERINTENDENT, with firm desiring man with experience in handling power, maintenance and construction; proof of ability furnished. P. W. 893, Eng. News.

DESIGNING AND CONSTRUCTION ENGINEER, with 12 years' experience on dredges and contractors' plant, wishes engagement after January; reference. P. W. 921, Eng. News.

MECHANICAL ENGINEER, college graduate, eight years' experience in general engineering, engineering and sales departments, desires position in sales department; Southern territory preferred. P. W. 925, Eng. News.

MECHANICAL ENGINEER, 34, technical school and 12 years' broad experience in various branches of engineering, including sales department. Position in or near New York preferred. P. W. 906, Eng. News.

MECHANICAL ENGINEER desires a position to suit his qualifications; technical graduate, 30 years of age; have had ten years' experience selling, erecting and operating large factories in Latin Americas and Japan; speaks Spanish well, know Spanish people and how to do business with them; can give the best of references as to character and ability. P. W. 949, Eng. News.

Civil Engineers

GRADUATE ENGINEER desires position; railroad maintenance and construction, water supply, steam and hydroelectric plants, heavy electric traction, operation and earning reports, shops and terminals. P. W. 8, Eng. News.

CIVIL ENGINEER, technical and 12 years' practical experience; design and construction; earth, masonry, concrete and steel; extensive water works experience; excellent references; minimum salary $200. P. W. 861, Eng. News.

CIVIL ENGINEER, graduate, 32, married, 11 years' experience, highways, railroad location and construction, hydroelectric developments, surveys, etc., desires change; excellent references. P. W. 866, Eng. News.

CIVIL ENGINEER, graduate 1905, age 30; past experience with U. S. Geological Survey, railroad construction, industrial plants, etc. P. W. 868, Eng. News.

GRADUATE ENGINEER, five years design, construction, operation water-works and sewers; concrete dams, conduits and steel pipe.—P. W. 881, Eng. News.

GRADUATE CIVIL ENGINEER, 1913, desires position drafting or computing for reinforced concrete or structural steel work. P. W. 898, Eng. News.

CIVIL ENGINEER, energetic, American, 28, unmarried; last 3½ years in South America, altitudes and tropics, open for engagement either here or abroad as locating, resident or divisional engineer; has excellent command of Spanish and German; will submit A-1 references on receipt of bona-fide proposition. P. W. 926, Eng. News.

YOUNG GRADUATE CIVIL ENGINEER, 1½ years' experience steel construction, speaking four languages, wants position, requiring ability for independent and original work along more general construction lines, office or field; good references; moderate salary. P. W. 930, Eng. News.

CIVIL ENGINEER, graduate, with long and varied experience on municipal, industrial and railroad engineering works; good knowledge of Spanish language from experience, and would particularly favor opportunity in South America. P. W. 919, Eng. News.

ENGINEER, 32; 13 years railroad maintenance of way on Eastern railroad as transitman, assistant engineer, supervisor track, inspector concrete, yard work, etc. P. W. 922, Eng. News.

CIVIL ENGINEER, M. I. T. graduate, twelve years' experience in general construction, covering railroad, highway, canal, bridge, and building work, would like position with a large contracting firm desiring a man who can produce results. P. W. 939, Eng. News.

CIVIL ENGINEER—Assoc. M. Am. Soc. C. E.—13 years' experience in the design and construction of hydraulic and municipal work desires change. Business experience. Minimum $3000. P. W. 935, Eng. News.

ENGINEER, thoroughly experienced surveys and construction desires engagement after Jan. 1. Certificates furnished. P. W. 934, Eng. News.

GRADUATE CIVIL ENGINEER wishes engagement; sewers, highways, drainage, landscape engineering, reinforced concrete; title, subdivision, topographic, railroad and general land surveys. P. W. 953, Eng. News.

CIVIL ENGINEER, graduate 1912; city and country surveying; railroad location; buildings, canal and dam construction; will deliver the goods, normal pay. P. W. 952, Eng. News.

Bridge and Structural

STRUCTURAL ENGINEER desires change; thoroughly familiar with economical design in steel and reinforced concrete; extensive field and office experience; expert building estimator; familiar with costs in Middle West; familiar with subcontracts; technical graduate; minimum salary, $6000. P. W. 875, Eng. News.

STRUCTURAL ENGINEER, technical, twelve years' varied experience; squad boss, designer; excellent references. P.-W. 907, Eng. News.

STRUCTURAL DESIGNER AND DRAFTSMAN, educated engineer, rapid and trustworthy as computor, expert checker, corresponding in German, French, Italian and Spanish, wants office work; anywhere. P. W. 929, Eng. News.

Surveyors

YOUNG MAN with some experience as rodman and chainman would like to join surveying party. Used to camp life. Will go anywhere. P. W. 943, Eng. News.

Draftsmen

TECHNICAL STUDENT, 22, quick at figures, desires position as draftsman or tracer; can furnish excellent references. P. W. 830, Eng. News.

DRAFTSMAN, structural steel, desires position checking or detailing. P. W. 924, Eng. News.

YOUNG DRAFTSMAN;mechanical, structural, 6 years' experience elevating, conveying, transmission machinery. Present employed with Guarantee Construction Co. New York. P. W. 946, Eng. News.

EXPERIENCED DETAILER AND ESTIMATOR on structural steel; technical education. P. W. 945, Eng. News.

Superintendents, etc.

SUPERINTENDENT of construction, first-class executive, broad experience; difficult foundations, locks, dams, bridges, building and industrial plant construction; concrete a specialty. P. W. 126, Eng. News.

SECRETARY, CORRESPONDENT, MANAGER, graduate civil engineer, architectural training, six years' office experience as secretary and correspondent. P. W. 877, Eng. News.

ACCOUNTANT AND BOOKKEEPER, age 32, desires position, ten years' experience with Contractors and Mining Companies. Thorough knowledge of bookkeeping, pay-rolls, costs, and all duties connected with contractors office. Excellent references. P. W. 895, Eng. News.

INDUSTRIAL ENGINEER, experienced in design, construction, maintenance and operation of manufacturing plants, desires engagement. P. W. 894, Eng. News, 1144 Monadnock Block, Chicago.

ENGINEER—Contractors superintendent wants engagement January 1, fifteen years' broad experience, all classes building construction, bridge work, heavy construction; good executive and manager. Best references. P. W. 896, Eng. News.

SUPERINTENDENT, general construction work, deep foundation, masonry and concrete work. Specially have had 27 years' experience in such work. Speak French and Italian. Open for engagement after Jan. 1. Would go anywhere. Southwest preferred. P. W. 911, Eng. News.

MECHANICAL SUPERINTENDENT, 40, with extensive experience on river and harbor work, desires different engagement; reference to past successful work; seven years with one company. P. W. 920, Eng. News.

OFFICE ENGINEER, 12 years' experience in charge of clerical, drafting room and field forces on surveys, designs, construction work, estimates and reports; principally waterworks; desires position in similar capacity; vicinity of New York preferred. P. W. 810, Eng. News.

SUPERINTENDENT AND ENGINEER of construction, 28, six years' experience on piers, trestles, railroad bridges, bulkheads, foundations, excavations, dredging, buildings. Best references. P. W. 937, Eng. News.

YOUNG MAN, 23, technical education, wants position; one year instrumentman railway construction and maintenance, six months bridge draftsman. Rapid, accurate computer and draftsman; excellent letterer. P. W. 940, Eng. News, 1144 Monadnock Block, Chicago.

CONTRACTOR AND SUPERINTENDENT, experienced on large work in Spanish America, desires position; especially where knowledge of Latin American conditions, requirements and labor may be valuable; but will go anywhere. Correspondence solicited and references exchanged. Julian L. Wells, P. W. 944, Eng. News.

GRADUATE ENGINEER, has supervised, in last eight months, construction on country estate, of three hollow tile and two frame residences, has done field engineering and actual construction of hollow tile and stone garages, sewer systems, roads, and water supply including 100,000 gallon reservoir. Best references. New York interview. P. W. 938, Eng. News.

BOOKKEEPER AND OFFICE MAN, experienced; wants $150 monthly. P. W. 908, Eng. News.

EXPERIENCED REINFORCED CONCRETE ENGINEER desires position. P. W. 951, Eng. News.

EXPERT in use, adjustment and construction of surveying and mathematical instruments, desires change; will make sacrifice from present position to insure better future; would prefer purchasing department of engineering corporation or railroad. P. W. 948, Eng. News.

YOUNG ROADS ENGINEER wants position of trust in engineering lines for the winter, anywhere in Maryland. P. W. 950, Eng. News.

POSITIONS OPEN

SALES REPRESENTATIVE, Boston and adjacent territory, the best, most salable concrete, mortar and plaster mixing machines and full line of contractors' equipment and machinery; only first class propositions considered. P. 855, Eng. News.

MUNICIPAL CIVIL SERVICE COMMISSION, Municipal Building, Room 1482, New York, December 26th, 1913.

PUBLIC NOTICE IS HEREBY GIVEN that applications will be received from

FRIDAY, DECEMBER 26TH, 1913 TO 12 M. SATURDAY, JANUARY 10TH, 1914

for the position of
CHIEF ENGINEER, GRADE E, DEPARTMENT OF PARKS, BOROUGH OF QUEENS.

No applications delivered at the office of the Commission, by mail or otherwise, after 12 M. SATURDAY, JANUARY 10, 1914, will be accepted. Application blanks will be mailed upon request but the Commission will not guarantee the delivery of the same. Applications, forwarded by mail, upon which postage is not fully prepaid, will not be accepted.

Applicants must be citizens of the United States and residents of the State of New York.

The subjects, and weights of the examination are: Experience, 5; Technical, 5; 75% required on the Technical and 70% on Experience.

Applications for this examination must be filed on a special blank, Form B. Experience blanks will be issued with the applications and must be filed with the Commission at the time of filing applications. The experience will then be rated. Candidates receiving less than 70% will not be summoned for the mental test.

Candidates should have had ample experience with municipal engineering work, particularly the construction and maintenance of parks and with the organization and control of public work. Candidates will be tested on their general knowledge of engineering, landscape architecture and special knowledge of grading, highway construction, drainage, water supply and allied engineering and executive matters pertaining to the construction and maintenance of parks.

Candidates must be not less than 25 nor more than 50 years of age on the last day for receipt of applications.

There is one vacancy in the Department of Parks, Borough of Queens, at a salary of $4000 per annum.

F. A. SPENCER,
Secretary.

ENGINEERING SALESMAN. Concrete engineer with experience in sale of concrete reinforcing wanted to take entire charge of bar department; location, Cleveland, Ohio. Applicants will please give complete details of experience, also indicating salary expected. P. 900, Eng. News.

STRUCTURAL estimator and draftsman wanted for general work including mill buildings, churches, etc. Give full information and references in first letter. Case Crane & Engineering Co., Columbus, Ohio.

WANTED: For bridge, structural and tank shop in the far east, one experienced template maker and layer-out. State experience, references and salary expected. P. 942, Eng. News.

EMPLOYMENT AGENCIES

Advertisers under this heading agree:
To refund any registration fee on demand when no position is secured.
To credit any registration fee against the commission when position is secured.

DIVISION ENGINEER for a large Eastern road; maintenance-of-way experience; age 30-35; salary $180-$200 per month. National Employment Exchange (Agency), 30 Church St., New York.

LAYER-OUT and template maker on structural steel and tank work for shop in Manila, P. I.; salary $150-175 and transportation; three year contract. National Employment Exchange (Agency), 30 Church St., New York.

MECHANICAL ENGINEERS who have had selling experience; must have a knowledge of machine design and a good sales record; salary $1800 and expenses. National Employment Exchange (Agency), 30 Church St., New York.

MISCELLANEOUS

DO YOU WANT A COMPETENT POWER PLANT ENGINEER? Without disclosing your identity, make your offer to thousands of men who are running plants at lowest cost and select the best man who answers. Specify qualifications, state salary you offer, and with the copy for your advertisement inclose payment at 5 cents per word, counting three additional words for keyed address. Power, 505 Pearl Street, New York.

LABORERS SUPPLIED contractors, railroads, etc. Commissary a specialty. Pellegrino, 73 Mulberry St., New York City. (Telephone—Franklin 1686).

A BUSINESS consisting of the manufacture and sale of an article for the hardware or implement trade, the contractor or farmer in the middle west, wanted. All correspondence will be treated confidential. Limited amount of capital to invest. M. 904, Eng. News.

MANUFACTURERS agents and engineers located in Long Island City, the gateway to an immense growing territory, will represent reliable concerns. M. 941, Eng. News.

CIVIL ENGINEER, familiar with reinforced-concrete building design and general construction, seeks business connection with engineer or contractor. Will invest. M. 947, Eng. News, 1144 Monadnock Block, Chicago.

FOR SALE

BOUND VOLUMES "Engineering News" from January 1892 to January 1913, cloth backs, leather bound, first class condition; just recently bound. F. S. 901, Eng. News.

CLASSIFIED LIST

SECOND HAND MACHINERY AND MATERIAL

FOR SALE — EXCHANGE — RENT — WANTED

Rates: Less than 4 insertions 50 cents per line—4 to 11 insertions 40 cents per line—12 or more insertions 35 cents per line.

Note: Addresses of advertisers are given at end of list.

AIR COMPRESSORS

2 2500 Ft. Ingersoll-Rand Corliss Cross Compound Steam and Air; 2 3500 Ft. Ingersoll-Rand Corliss Cross Compound Steam and Air; Boilers and Condensers for the above. All in good order and condition.—SAMPSON.

1 284 Ft. Rand Type XI Belt Driven Low Pressure.—SAMPSON.

1 8x8x12—98 cu.ft., Class C, Straight Line.—SAMPSON.

1 236 cu.ft. 12¼x12 Class F Ingersoll-Rand Straight Line Steam Driven.—SAMPSON.

2 134 cu.ft. 10x10 Class E Straight Line Ing.-Rand Belt Compressor.—SAMPSON.

1 534 cu.ft. Two Stage Duplex Steam Driven Type X Imperial Ingersoll-Rand Compressor.—SAMPSON.

1 69 cu.ft. 8x8 Knowles Straight Line Belt Driven Compressor.—SAMPSON.

1 235 cu.ft. 12x12 Straight Line Chicago Belt Driven Compressor.—SAMPSON.

4 Abenaque air compressors, 15 H.P.—SPROUL.

1—16x16¼x18 Class "A" Ingersoll.—PITTSBURGH.

2—20x20¼x24 Class "A" Ingersoll.—PITTSBURGH.

AIRLOCKS

1 New contractors air lock.—WHITNEY.

BOILERS

1 345 HP. Heine—200 lb. pressure, new—cost $4600, sell for $2250.—LINES FLYNN.

Three 200 horse Heine, 150 lb. steam.—WICKES.

BUCKETS

9 1½ yd. Stuebner open bottom concrete.—WHITNEY.

1—1¼ yd. Hayward Clam Shell.—BECKWITH.

2 ¾ yd. Williams Single Line Clam Shells.—BECKWITH.

CARS

[Standard Gauge]

A number of low price passenger coaches suited for camp cars.—WILSON.

5 6-yd. dumping and spreading cars.—SPROUL.

[36" Gauge]

8 36" gauge double truck tank cars.—MINNESOTA.

5 36" gauge double truck flat cars.—MINNESOTA.

120 5-yd. 2-way, all steel Peteler cars, built in 1910 and 1911, thoroughly overhauled and painted. These are the strongest, best steel cars we have ever seen.—MINNESOTA.

36 4 yd. K. & J. 2-way dump.—KLEINHANS.

CHAIN BLOCKS

2 ton to 10 tons capacity.—DOUGLAS.

CRUSHERS

4 Climax Stone crushing plants, No. 2½.—SPROUL.

DERRICKS

1 Derrick car, steel boom 16' long, Std. Gauge.—DOUGLAS.

3 Travelers, to handle 1 yd., 15 cu. ft. and 12 cu. ft. O. P. Buckets. Woodbridge Shop.—LINES FLYNN.

2 American Guy, 65' booms, with Bull Wheels.—BECKWITH.

DRAG LINE MACHINES

2 Lidgerwood—60' booms—CONTRACTORS.

1 Heyworth, 100' boom; 1 Browning, 85' boom.—GIVIN.

DRILLS

2 No. 3 Keystone well; practically new.—MINNESOTA.

ENGINES

Ames high speed engine, 15x14".—DOUGLAS.

1 8 HP. Vertical Type Fairbanks Gasoline Engine with sub-base.—SAMPSON.

HOISTING ENGINES

2 12x14 Lambert, scraper bucket type.—CONTRACTORS.

1—8¼x10 American—Boiler, Swinging Gear.—BECKWITH.

2—7x10 American—Boilers, Swinging Gears—BECKWITH.

2—Byers Builders Hoists.—BECKWITH.

1—9x10 Mead-Morrison S. D. Shaft hoist.—BECKWITH.

One 8x10 D.C. D.D. with boiler.—SPROUL.

Three Lidgerwood 8¾x10 D.C. D.D. with Boilers.—WICKES.

One 16x20 D.C. S.D. Mine Hoist.—WICKES.

HOISTS, ELECTRIC

1 3-drum, 75 H.P. 2-phase, 60 cycle, 220 v.—GIVIN.

INSTRUMENTS, SURVEYING

[Wanted]

Transit in good condition, with or without vertical circle. DAVID O. ANDERSON, Marion, S. C.

LOCOMOTIVES

[Standard Gauge]

1 Porter, Std. G., 20-ton, 12x18, saddle tank.—DOUGLAS.

1 13"x18"—30 ton—S. T.—air brakes.—CONTRACTORS.

1 24 ton 12"x18" four wheel Porter saddle tank. Will pass rigid inspection.—WILSON.

1 38 ton 12"x14" Climax geared locomotive. Thoroughly overhauled.—WILSON.

4 Climax standard gauge, 30 to 45 tons; practically new; excellent condition. Birmingham delivery.—BIRMINGHAM.

1 19x24, 10-wheeler; new firebox. Birmingham delivery. —BIRMINGHAM.

1 18x24 Baldwin mogul; new firebox. Birmingham delivery.—BIRMINGHAM.

1 18x24 Rogers 42-ton six-wheel switcher. Birmingham delivery.—BIRMINGHAM.

1 18x24 Pittsburgh six-wheel switcher. New York delivery.—BIRMINGHAM.

1 18x24 Schenectady 10-wheel; excellent condition and new cylinders. Birmingham delivery.—BIRMINGHAM.

1 35-ton, 14x22, Baldwin Forney-type, with front truck; 160 lb. steam pressure, Birmingham delivery.—BIRMINGHAM.

1 65-ton Baldwin consolidation, cylinders 20x24; new 180 lb. boiler built by Baldwin. Birmingham delivery.—BIRMINGHAM.

1 38-ton Baldwin mogul, cylinders 16x24. Birmingham delivery.—BIRMINGHAM.

1 21-ton New York Elevated Forney-type. Birmingham delivery.—BIRMINGHAM.

3 40-ton, 4-wheel American Switchers.—CONTRACTORS.

1—12x18" Porter Saddle Tank, M.C.B. couplers. Overhauled and tested.—PICKETT.

1—12x16" Manhattan Forney. Rebuilt.—PICKETT.

1—20x24" Baldwin 6-wheel Switcher. Rebuilt.—PICKETT.

1—14x32 S.T. Rebuilt Baldwin.—PITTSBURGH.

1 40-ton saddle tank.—KLEINHANS.

1 30-ton saddle tank.—KLEINHANS.

[36" Gauge]

2 10x16 Vulcan S.T. extension front, nearly new.—DALLETT.

1 11x16 Pittsburgh 4-wheel saddle-tank.—MINNESOTA.

30 9x14 Porter 4-wheel saddle-tanks 36" gauge. Most of these have steel cabs and were built since 1902; thoroughly overhauled.—MINNESOTA.

1 10x16 Porter four-wheel saddle-tank. Birmingham delivery.—BIRMINGHAM.

4 11"x16" Vulcans—new 1910—CONTRACTORS.

2 10x16 Porter, A1, will rent.—CONTRACTORS.

9 12x16 Porter 4-wheel saddle tanks, built 1910 and 1911; thoroughly overhauled; practically new.—MINNESOTA.

One 11x16, 4-wheel saddle tank Porter, with 2-wheel back truck; thoroughly overhauled, located Birmingham, Ala.—MINNESOTA.

1—6x10" Porter Saddle Tank. Rebuilt.—PICKETT.

1—10x16" 4-driver S. T. Davenport, Rebuilt.—PICKETT.

1 9x14 Porter No. 3673.—WHITNEY.

2 7x12 4-wheel saddle-tank Porters, excellent condition, Birmingham delivery.—BIRMINGHAM.

6 9x14 4-wheel saddle-tank Porters, built in 1903, excellent condition, Birmingham delivery.—BIRMINGHAM.

6—9x14 S.T. Rebuilt Porters & Vulcans.—PITTSBURGH.

2 H. K. Porter 10x16, new 1911.—KLEINHANS.

LOCOMOTIVE CRANES

4 and 8-wheel, 10, 15 and 20 tons capacity.—HOISTING MACHINERY Co., 48 Church St., New York City.

1 17 ton, eight-wheel Brown-Hoist—CONTRACTORS.

15-ton, excellent condition; cheap.—STALLEY.

1—15 ton, 8 wheel, outriggers. A-1 condition.—GIVIN.

10-ton, Industrial Works, double drums.—KLEINHANS.

10 ton, 8-wheel, clam shell and pile driving attachment.—PICKETT.

15 ton Browning, late model, 36" and S. G.—DALLETT.

MACHINE TOOLS

Rotary planer or face milling machine, 42" head. Belt-driven.—DOUGLAS.

MIXERS (Asphalt and Concrete)

3—No. 6 Chicago Cubes with sideloaders.—BECKWITH.

1—No. 5, 1-yard Smith with engine.—BECKWITH.

1—No. 2½, ½ yard Smith, Engine and Boiler.—BECKWITH.

3 "STANDARD" Low Charging, Steam driven.

2 "STANDARD" Low Charging, Gasoline driven.

1 Chicago Cube, on Truck with Side Loader, Steam.—STANDARD.

PUMPING ENGINES

One 4,000,000 and one 5,000,000 gallon Worthington High Duty Duplex Compound. Also two 2,000,000 gallon Worthington Low Duty Duplex Compound. All in good working order. For particulars address D. W. FRENCH, Supt., Hackensack Water Co., P. O. Box 98, Weehawken, N. J.

PUMPS

1 Cameron 3½x2x4 Steam pump.—SAMPSON.

4" & 5" Pulsometers—2", 6" & 8" D.C. Centrifugals—Duplex Pumps—Overhauled, Woodbridge Shop.—LINES FLYNN.

1—No. 4 Emerson Steam Pump.—BECKWITH.

Portable, Diaphragm & Centrifugal Rigs.—"STANDARD."

One 1000-gallon Worthington Underwriters.—WICKES.

RAILS

7000 ft. 56 lb.—DOUGLAS.

15 miles 40, 45, 56 and 60 lb. rails.—MINNESOTA.

500 tons 60 lb. with angle bars.—SHERWOOD.

1000 tons 70 lb. with angle bars.—SHERWOOD.

ROAD LOCOMOTIVES

5 six yard dumping and spreading cars.—SPROUL.

1 Buffalo Pitts 22 H.P. hauling engine.—SPROUL.

ROAD ROLLERS

4 Buffalo Pitts 10-ton rollers.—SPROUL.

[WANTED]

At once, light tandem roller. Send information to M. 902, Eng. News.

SCALES

One 80-ton Railroad track scale.—DOUGLAS.

SCREENS

1—Revolving Screen, 40"x12' complete.—BECKWITH.

STEAM SHOVELS

2 —70C Bucyrus—1910-12—will rent—CONTRACTORS.

1 Model "O" Thew ⅝ yard dipper—A-1—CONTRACTORS

3 Marion 60 steam shovels; thoroughly overhauled, immediate shipment.—MINNESOTA.

1 65-ton Bucyrus with model 70 front end applied; first class condition. Immediate shipment.—MINNESOTA.

2 Marion G's, first class condition.—MINNESOTA.

1 Marion Model 70, 3 yd. new 1912.—CONTRACTORS.

Ohio Traction Steam Shovel. 1¼ yds. capacity; Cheap.—PEACE BROTHERS, 20 Main St., Flushing, N. Y.

1 ¾ yd. revolv. traction, will rent.—CONTRACTORS.

1 Little Giant Special, 1¼ yard dipper, on standard-gauge trucks; thoroughly overhauled. Birmingham delivery.—BIRMINGHAM.

2 Marion Model G's; 2½ yard dippers, excellent condition. Birmingham delivery.—BIRMINGHAM.

1 No. 3 Thew 1¼-yd. dipper, on standard-gauge trucks. Birmingham delivery.—BIRMINGHAM.

1 Marion 60; excellent condition; immediate shipment. Birmingham delivery.—BIRMINGHAM.

1 Marion Traction Rotary, Model 28, Shop No. 2764, new July, 1912. Has had 8 months service and is in A-1 condition. —SAMPSON.

¾ yd. Revolving Traction Shovel $2900. Completely rebuilt at Woodbridge Shop.—LINES FLYNN CO.

1—"O" Thew, one year old, A-1 condition.—GIVIN.

Type "O" Thew traction, modern, high number.—DALLETT.

2 Model 60 Marions, practically new.—KLEINHANS.

STRUCTURAL STEEL

1000 tons new structural steel angles, plates, beams, channels, tees, etc.—DOUGLAS.

TRAVELING CRANES

1 30-ton electric, 53' span.—DOUGLAS.

1 15-ton electric 36' 6" span.—DOUGLAS.

1 7½-ton electric, 29.8' span.—DOUGLAS.

VALVES

Lots of second hand brass and iron body valves—assorted sizes—for sale cheap. L. F. SEYFERT'S SONS, Inc., 437 North Third St., Philadelphia, Penn.

WAGONS, DUMP

[Wanted]

Ten wagons. Must be in good repair. State location, price and make. M. 936, Eng. News.

ADDRESSES

BECKWITH, J. S., 106-107 W. Parkway, Pittsburgh.

BIRMINGHAM Rail & Loco. Co., Birmingham, Ala., also 66 Beaver St., New York City.

CONTRACTORS' SERVICE CO., 50 Church St., N. Y. City.

DALLETT & CO., Harrison Bldg., Phila., Pa.

DOUGLAS, Geo. B., 29 Broadway, New York.

GIVIN Co., Herbert, 30 Church St., N. Y. City.

KLEINHANS Co., H., Oliver Bldg., Pittsburgh, Pa.

LINES FLYNN Co., Inc., 30 Church St., N. Y. City.

MINNESOTA Equipment Co., Hibbing, Minn.

PICKETT Co., Inc., H. W., Harrison Bldg., Phila., Pa.

PITTSBURGH Mchy. & Equip. Co., Fulton Bldg., Pittsburgh.

SAMPSON Co., Geo. H., 13 Pearl St., Boston, Mass., and 42 B'way, N. Y. C.; or Winston & Co., Brown Station, N. Y.

SHERWOOD, E. C., 50 Church St., N. Y. City.

SPROUL, Harvey B., Peekskill, N. Y.

STALLEY, G. T., Box 390, Cleveland, Ohio.

STANDARD Scale & Supply Co., The, 136 W. B'way, N. Y. C.

WHITNEY, O. R., 39 Cortlandt St., N. Y. City.

WICKES Bros.—Jersey City, N. J.

WILSON, E. H. & Co., Arcade Bldg., Philadelphia, Penn

Dredge For Sale

Second Hand Hydraulic Dredge.

A Bargain.

Ellicott Machine Corporation, Baltimore, Md.

Important to Buyers of Scientific Books

On Monday afternoon, December 29, 1913, The Anderson Auction Company will sell by auction the Library of the late GEORGE M. MAYNARD of New York City, a collection which is widely known because of the large number of desirable works on Geology, Chemistry, Metallurgy, and Mining. Catalogues on application. Sale begins at 2.30.

The Anderson Auction Company

Madison Avenue at Fortieth Street New York

Rock Crushing Plant For Sale

No. 4 Allis-Chalmers Gyratory Stone Crusher, capacity 20 tons per hour, with elevato', screens, pulleys, shafting and extra parts in good condition.

The Astoria Light, Heat & Power Company

Astoria, Long Island

September 84-Page Bulletin—Now Ready

Consult it before buying or selling

Rails, Locomotives, Cars, Machinery

ZELNICKER CENTRAL ACCUMULATOR CO. St. Louis

PILING DRAG LINES

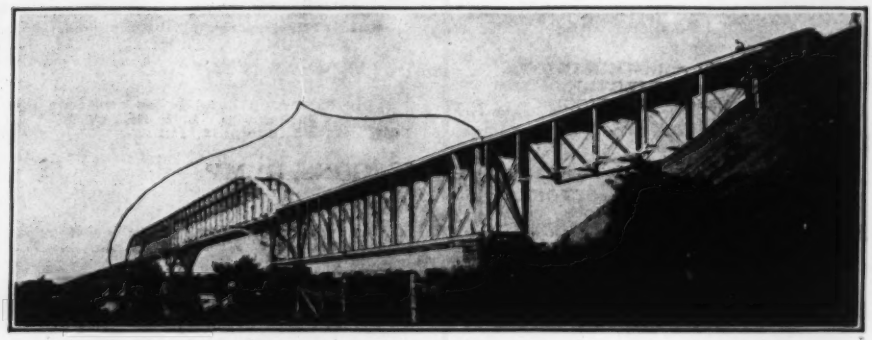
EQUIPMENT of all kinds.

LOCOMOTIVES

9 10x16 Porter, Vulcan and Davenport 3 ft. gauge, built in 1906, Atlanta. Locomotives of other types, narrow and standard gauge, at our shops.

Southern Iron & Equipment Co., Atlanta, Ga.

Steel Bridge For Sale



An excellent opportunity is offered to bridge constructors, contractors, etc., for obtaining a substantial, well-built steel bridge ready for immediate delivery at a moderate price. This bridge was formerly in use by the Canadian Pacific Railway over the St. Lawrence River at Lachine, P. Q. and was recently replaced by a double track structure. It is in excellent condition and consists of four spans of the following lengths.

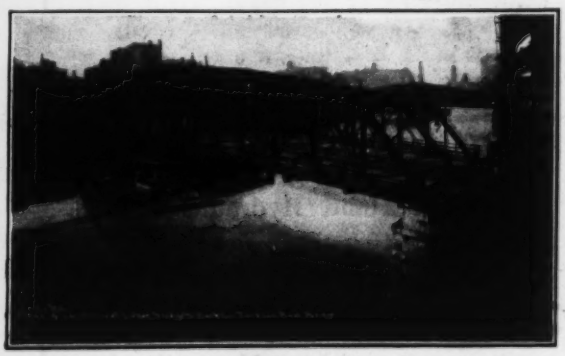
2—408 ft. Through Spans. 2—269 ft. Deck Spans. Weighing in all 2070 tons.

Tenders for purchase of this bridge will be received by

E. N. Bender, *General Purchasing Agent,*

Canadian Pacific Railway Company, Montreal, Que.

—*A Bargain!*



FOR SALE

Jackson Boulevard Bridge

Chicago

Swing Bridge in perfectly good physical condition.
To be removed on account of widening of river.
Designed for heavy highway traffic.
Good for 40-ton interurban cars. Double Roadway.
Dimensions: 280'0" length.
21'0" Center to center of trusses (3)
9'0" Sidewalks (2)
Electric or steam operating machinery.

An exceptional opportunity. Write today for full details.

Great Lakes Dredge & Dock Company
Monroe Building **Chicago, Ill.**

For Sale or Rent

EVERYTHING FOR THE CONTRACTOR

Locomotives, Steam Shovels, Boilers, Engines, Derricks, Pumps, Compressors, etc. Your inquiries solicited.

Henry A. Hitner's Sons Co.

Station K. Philadelphia, Pa.

Real Bargains

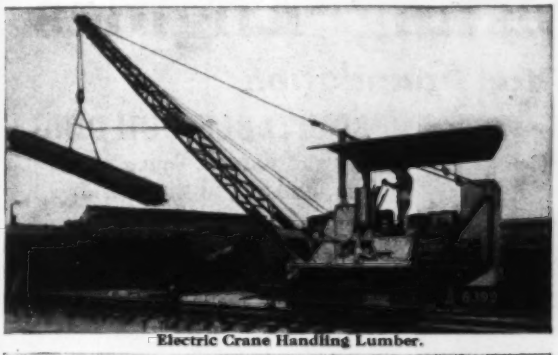
We do not want to store
the four hundred pieces of

Contractors' Equipment

consisting of Air Compressors, Hoisting Engines, Boilers, Locomotive Cranes, 10 ton Bucyrus Shovels, Pumps, Pipe, Rails, Crushers, etc., etc., from the Thos. McNally Aqueduct Contract. No reasonable offer refused.

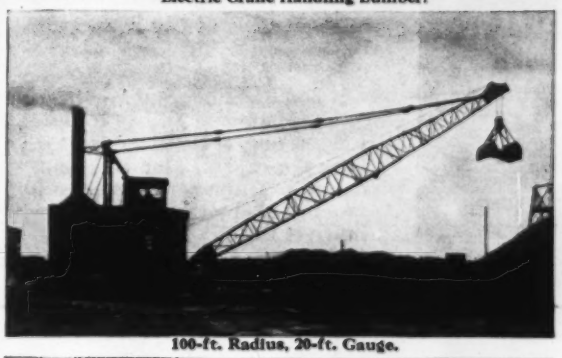
E. B. Leaf Co., Harrisburg, Pa.

Link-Belt Locomotive Cranes

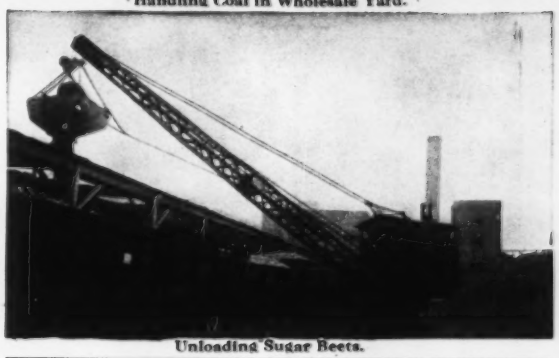


Electric Crane Handling Lumber.

Handling Coal in Wholesale Yard.



100-ft. Radius, 20-ft. Gauge.

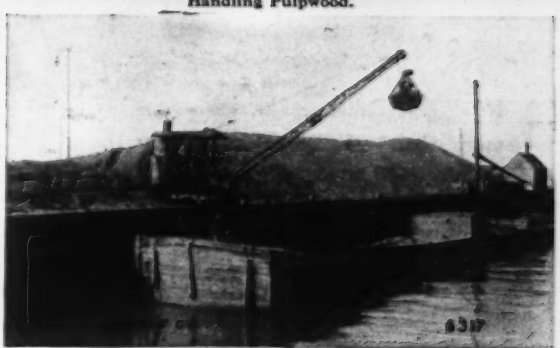


Unloading Sugar Beets.

Storing Coal.

Handling Pulpwood.

United States Steel Products Crane.



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Sinking Caissons for Foundation

EQUITABLE BUILDING
Largest Office Building in the World

In excavating for the piers, Lidgerwood Hoisting Engines were used and an average of 1500 cubic yards were taken out a day.

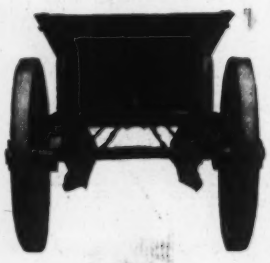
The building will cover an area of more than 50,000 sq.ft., will be 36 stories high and have a floor space of over 40 acres.

The foundations are practically complete. The O'Rourke Engineering & Construction Co. have the contract for the foundation. The superstructure will be erected by the Thompson-Starrett Co.

Lidgerwood Mfg. Co., 96 Liberty Street, New York

Chicago Pittsburgh Philadelphia Seattle Portland San Francisco London, Eng.

Watsons Cost More



Watson dumping wagons have always cost more than other wagons. Very likely they always will. And yet the Watson outnumbers the others by many thousands. This is because our customers figure on the **last** cost rather than the first. Does the idea appeal to you?

Watson Wagon Company
Canastota, N. Y.

The World's Largest Builders of Dumping Wagons

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For Water Works,

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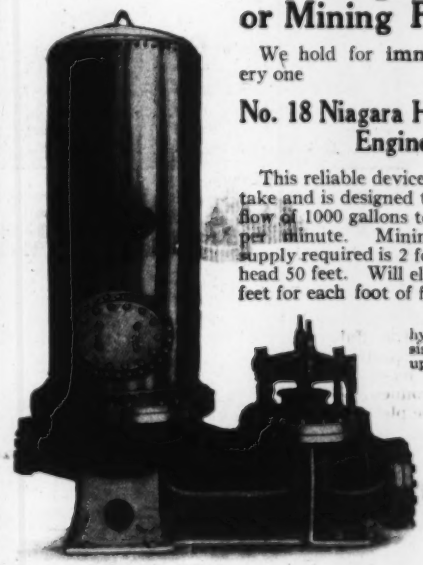

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No. 18 Niagara Hydrokinetic Engine

This reliable device has an 18" intake and is designed to operate on a flow of 1000 gallons to 1800 gallons per minute. Minimum head of supply required is 2 feet. Maximum head 50 feet. Will elevate water 35 feet for each foot of fall.

We manufacture hydraulic rams, all sizes from ½" intake upward.

Write for details.

Niagara Hydraulic Engine Co.
Chester, Pa.

"BUFFALO"

SINGLE ACTING TRIPLEX PUMPS

Fig. 476
Size, 2 x 6, Motor Driven, for Hydraulic Pressure Work.

Belted or Direct Connected for Every Service.

Catalog on Request.

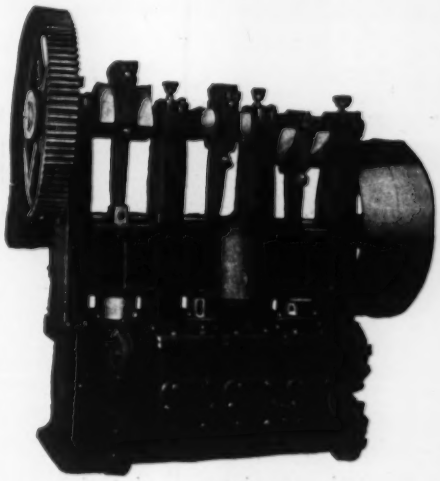

Fig. 431
Size, 2½ x 8, for General Service.

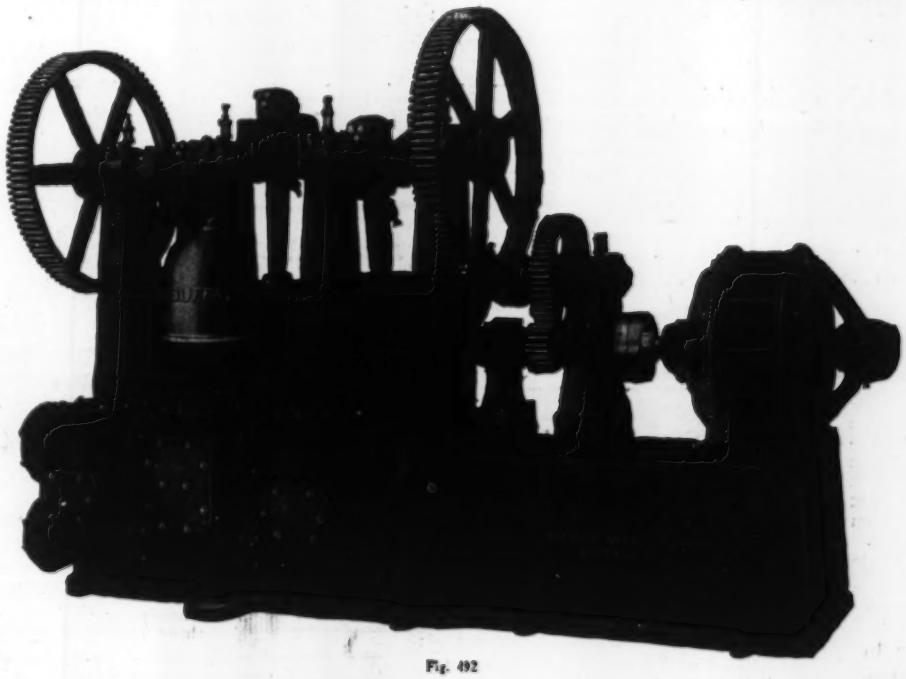

Fig. 492

The design of Buffalo Single Acting Triplex Pumps is characterized by sturdy detail. The small parts usually giving early trouble and requiring replacement at considerable annoyance and expense, have been given a large "factor-of-safety." A careful purchaser will investigate detail dimensions of important parts, such as crank-shaft and pins, cross-head shoes, length of connecting rods, depth of stuffing-boxes, gear dimensions and valve area percentages. Our nearest branch office will be pleased to quote and furnish such information on request.

We also build triplex pumps in small sizes, with two-bearing crankshaft construction.

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Detroit
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Philadelphia
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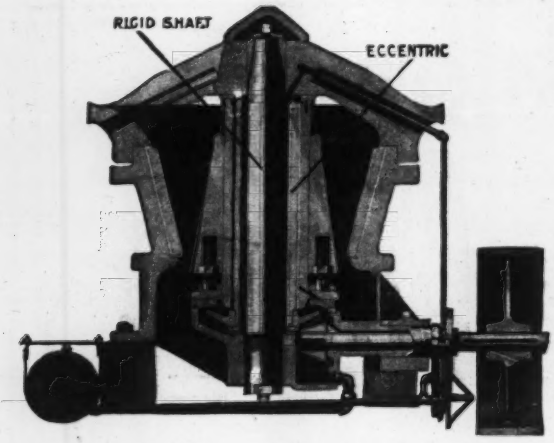


The Rigid Shaft Means—

(a) a *great, central bolt* of forged steel, (b) that cannot spring, (c) that never crystallizes, (d) that cannot be broken, (e) a central pillar brace, that distributes uniformly all the crushing strains, (f) a great steel axis that gives rigidity and strength to the whole structure of the

TELSMITH PRIMARY BREAKER

Size	A	B	C
3	2′- $8\frac{15}{16}$″	$6\frac{3}{4}$″	4′-$3\frac{11}{16}$″
4	2′-$10\frac{9}{16}$″	$7\frac{3}{4}$″	4′-$5\frac{7}{16}$″
5	3′-10 ″	$8\frac{5}{16}$″	5′-$7\frac{3}{16}$″
6	3′-$10\frac{3}{8}$″	11 ″	6′-$1\frac{3}{8}$″
$7\frac{1}{2}$	4′- $9\frac{1}{4}$″	$13\frac{15}{32}$″	7′-$3\frac{3}{4}$″
9	5′- $3\frac{1}{2}$″	15 ″	8′-$2\frac{1}{2}$″

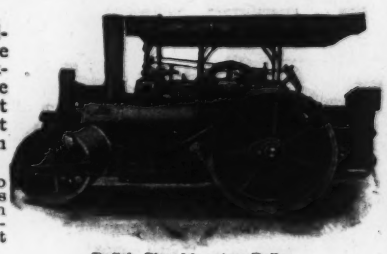
This table shows shaft dimensions in our various sizes. Figure the strength of this fixed shaft. Then, if you have had shafts break in your plant, you'll want our catalog No. 151. We'll send it if you will say the word.

THE T. L. SMITH CO., 1126 32nd St., Milwaukee

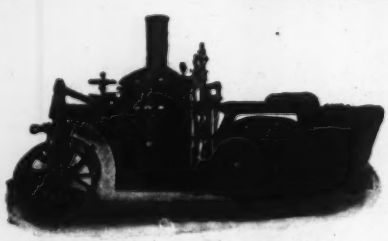
BUFFALO PITTS ROAD ROLLERS

are the most efficient and durable rollers manufactured — giving the best and longest service for the least cost for operation and maintenance.

The first Buffalo Pitts Road Rollers built are still in condition to perform the severest service



Buffalo Pitts Macadam Roller



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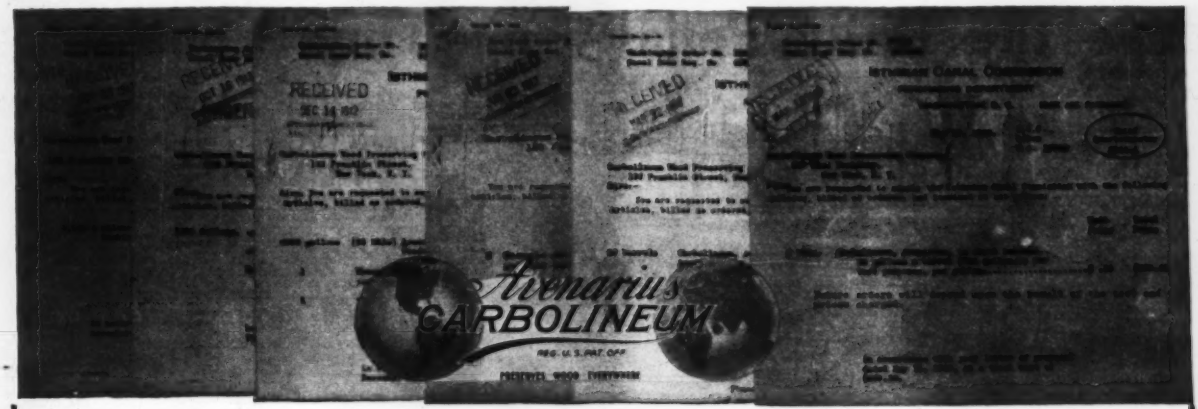

CONTINUITY

furnishes a sound basis for comparing values. All values are comparable.

Note that the first order reproduced specifies "Future orders will depend upon results of the test and prices charged." Both were eminently satisfactory as subsequent orders prove.

Avenarius Carbolineum is used and endorsed by many Departments of the U. S. Government. Their experience, their tests, their continued orders are certain and positive evidence. It is used on the most expensive structures where the greatest permanence is desired. Various Government Departments have submitted their wood-preserving problems to our Consulting Department —Tests have been made and treating plants designed. That Service is also at your disposal.

Only this month the Chief Signal Officer of the U. S. Army wrote us:

"The results obtained in the experiments conducted with your Consulting Department were very satisfactory."

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The Reclamation Service has for many years been a large consumer of Avenarius Carbolineum.

The Forest Service has made and published many comparable tests with Avenarius Carbolineum.

Actual words of appreciation are not lacking. They are based on practical experience of many years under extreme and greatly varying conditions. Take the two statements from the Lighthouse Department. **It's an ocean to ocean —an everywhere experience which accrues to your benefit—you judge by broad results—not merely sectional or laboratory tests:**

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Carbolineum Wood Preserving Co.

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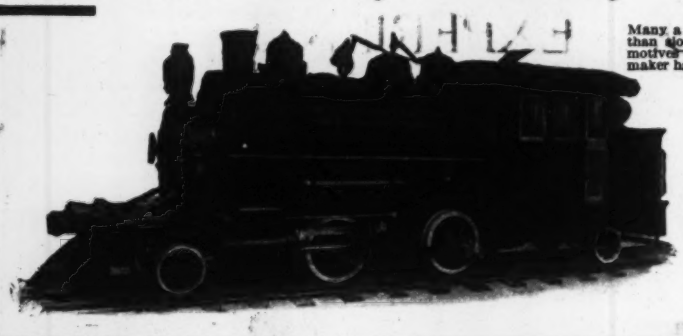
512 Prairie Street, Milwaukee, Wis. **161 Front Street, Portland, Ore.**

Save the Daily Penalty on Time Contracts



Many a penalty on a big job is actually chargeable to locomotives, rather than slow work or non-delivery of material. Properly designed Locomotives with interchangeable parts that fit their conditions perfectly, whose maker has a big stock of every repair part ready for immediate shipment, are constantly "on the job" and do their share of penalty-saving

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Contractors' Locomotives

have shown hundreds of contractors, that they have these good qualities. Vulcan stock designs incorporate double-bar frames, perfect fuel burning qualities, correct weight distribution and efficient wheel arrangements. Other designs, to meet special conditions, come out of the shops with Vulcan Character built right into them. Send for Locomotive literature.

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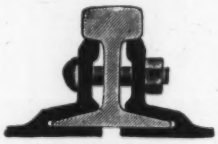

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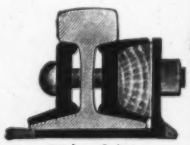
Over 50,000 miles in use



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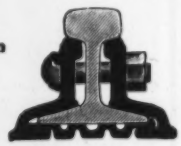
Rolled from Best Quality Steel



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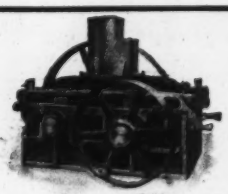

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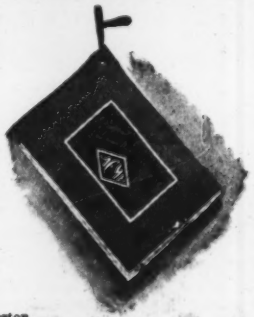

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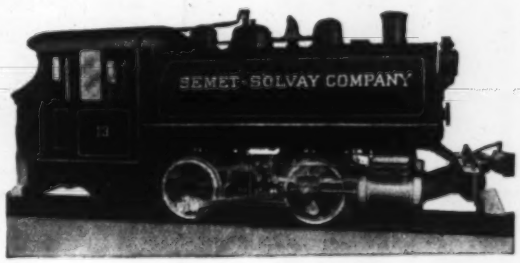

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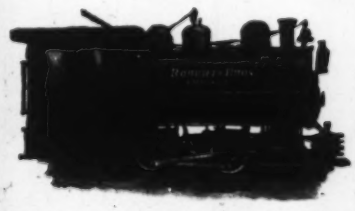

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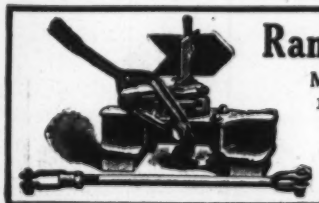

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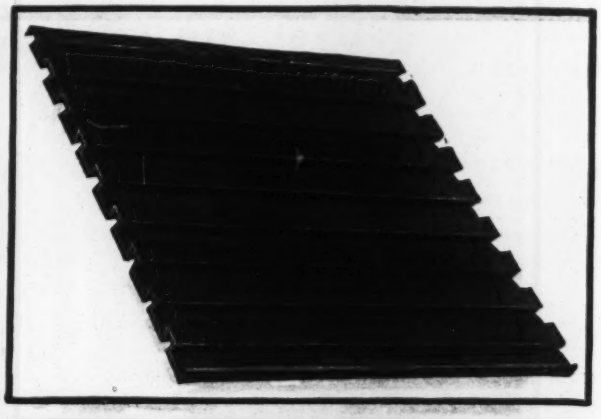

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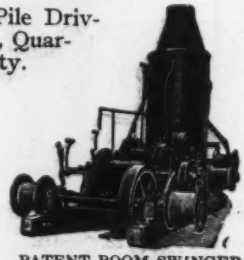

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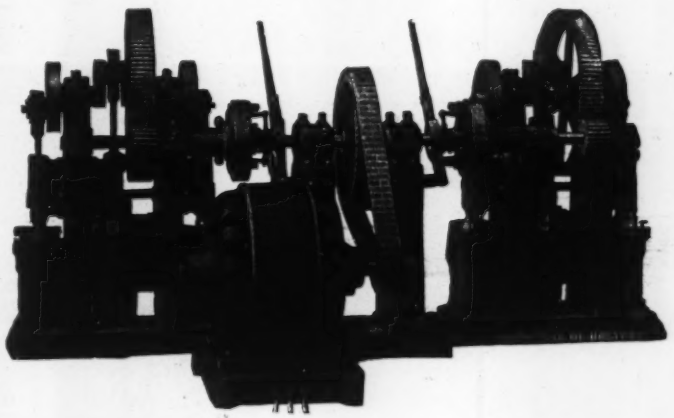
5—Less Noise and Greater Reliability.



Morse Chain Company, Ithaca, N.Y.
A-104

LEVIATHAN AND ANACONDA
ELEVATING TRANSMITTING CONVEYING
BELTING

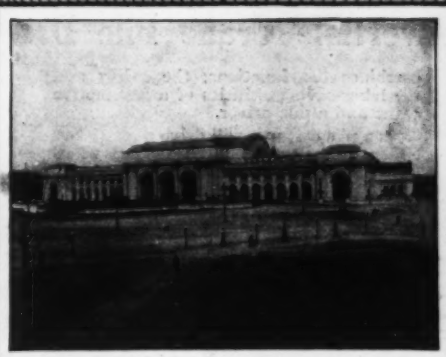
THE best method we have for "getting acquainted" with a man is through a Leviathan or an Anaconda Belt. When he has put that belt into use, and watched it day after day—then we know each other better, he has faith in us and our goods—especially if he compares his "Leviathan" or "Anaconda" with some other belt.

Our nearest house will gladly tell you about "Leviathans" and "Anacondas" for your work.

Main Belting Company
Philadelphia

New York **Chicago** **Boston**
Pittsburgh **Seattle** **Birmingham**

Main Belting Co. of Canada, Ltd.
Montreal **Toronto** **Calgary**



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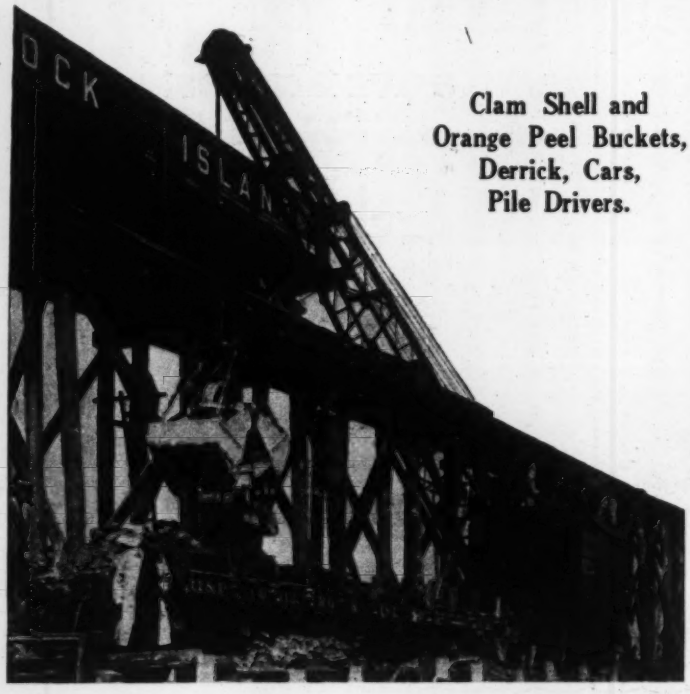
Used in this fine Depot.

In the new Union Depot, Washington, D.C., coal and ashes are automatically handled by a Hunt Pivoted Bucket Conveyor. A Hunt Coal Cracker provides coal of just the right size to suit the boilers.

Ask for a copy of our catalog T 12-9 Hunt Coal & Ore Handling Machinery and find out the saving effected by this machinery.

C. W. HUNT CO., Inc.
WEST NEW BRIGHTON, N. Y.
Designers and Manufacturers of Apparatus for the Automatic Handling of Bulk Material.
7

This was a Most Difficult Piece of Work



Clam Shell and Orange Peel Buckets, Derrick, Cars, Pile Drivers.

It was profitably and safely as well as simply done with one of our Type "J" Locomotive Cranes with a Type M Clam Shell Bucket digging blue stiff clay. Many contractors should see us at once. Learn all about these cranes and ascertain what they can do. Save money and make money by getting one on the job at once.

Drag Scraper Buckets

can be handled on these machines with booms up to 70′ in length.

Pile Driving

can be done at the lowest cost with steam or drop hammer.

Write for No. 30 Bulletin for all the news.

The McMyler Interstate Co.

Cleveland, Ohio

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E20

An Industrial Works Convertible Crane Pile Driver

combines the functions, the safety and the labor-saving abilities of a locomotive crane and a pile driver.

As a pile driver it will drive piles 29 feet either side of track or 21 feet from wheel base at either end of car. It has a complete battering arrangement.

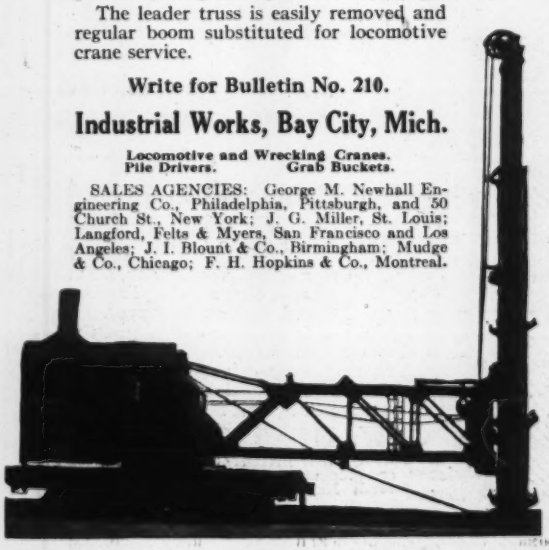
The leader truss is easily removed and regular boom substituted for locomotive crane service.

Write for Bulletin No. 210.

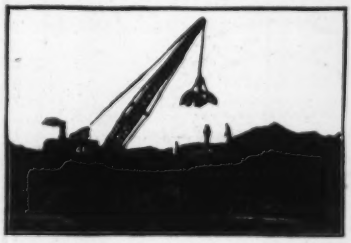
Industrial Works, Bay City, Mich.

Locomotive and Wrecking Cranes.
Pile Drivers. Grab Buckets.

SALES AGENCIES: George M. Newhall Engineering Co., Philadelphia, Pittsburgh, and 50 Church St., New York; J. G. Miller, St. Louis; Langford, Felts & Myers, San Francisco and Los Angeles; J. I. Blount & Co., Birmingham; Mudge & Co., Chicago; F. H. Hopkins & Co., Montreal.



BROWNING LOCOMOTIVE CRANES



With A Wood Grapple.

BROWNING Locomotive Cranes saving their owners time, labor and demurrage are illustrated in our catalog.

Write for one at once.

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Better Design — Better Built — Do Work Cheaper — Wear Longer

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A "Union" Substituted for the Drop Weight

Union Pile Hammers

present a way to modernize your drop weight equipment at the lowest possible cost.

Just junk the drop weight and substitute a "Union," as shown in the illustration.

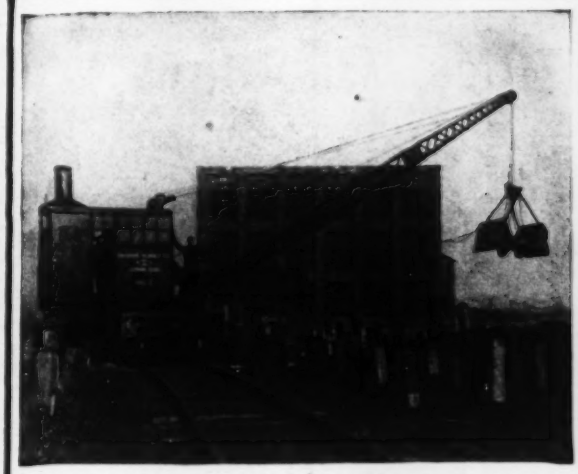
The new way of driving presented by Union Pile Hammers replaces the heavy and infrequent pounding of the primitive drop and single acting hammer by the quick, double acting hammer which delivers a succession of blows so rapidly that each blow falls before the movement caused by its predecessor has ceased. Piles and sheeting can be pushed into the ground without splitting or brooming.

Write for the "Union" Catalog.

Union Iron Works

West Shore Station, Hoboken, N. J.

Manufacturers of Excavating Machinery and Contractors' Equipment.



Eight-Wheel Crane used for storing coal, in anticipation of a coal strike.

For **Speed, Economy and Durability** investigate the merits of the **"Ohio."**

Accompanying illustrations show two different styles of our cranes being operated by the B. F. Goodrich Company, (Diamond Rubber Plant), Akron, Ohio.

As we manufacture Locomotive Cranes only we have several experts in our Engineering Department whose services are free for solving your problems.

Our catalogue No. 5 will prove interesting to you.

The Ohio Locomotive Crane Co.

Mansfield St. Bucyrus, Ohio

Four-Wheel Crane for 8 foot gauge of track, equipped with 60 foot boom and mounted on a trestle 32 ft. high, electrically operating a 1½ cubic yard bucket for handling coal.

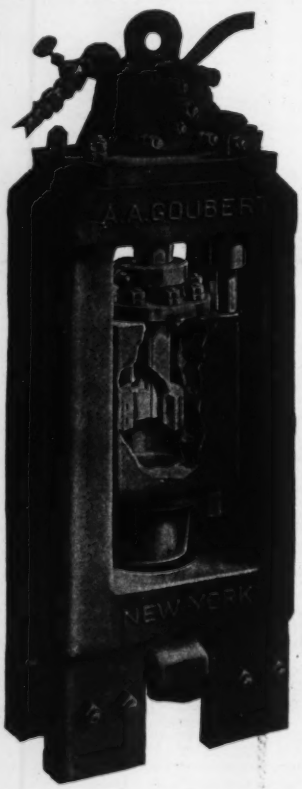
Rock Handling with Hayward Buckets

Pamphlet No. 592 is devoted entirely to rock handling. Other Pamphlets cover the entire digging and rehandling field. They will be sent on request.
The advice of our engineers is free—consult us about the use of HAYWARD BUCKETS.

ORANGE PEEL CLAM SHELL AND ELECTRIC MOTOR CLAM SHELL BUCKETS DRAG LINE

The Hayward Company

50 Church Street
New York, U. S. A.



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PILE-DRIVING
HAMMER

The cylinder is the ram that strikes the blow.

Made all of steel—practically indestructible.

Send for catalogue

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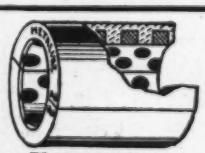
BROWNHOIST
Locomotive Cranes

are built for hard and continuous service,—records showing that they will work day and night for months without one dollar's worth of repairs.

Send for catalogs I & K which show how and where these cranes are used.

The Brown Hoisting Machinery Co.
Cleveland, Ohio

STIFF LEG HEAD BLOCK
of Latest Pattern
Note how simply it is attached to mast.
Patented by
THE TERRY & TENCH COMPANY, Inc.
Room 1044, Grand Central Terminal, New York.
The Cedar Rapids Mfg. & Power Co. have 13 of our derricks at their St. Lawrence River Plant, about 30 miles below Montreal, to whom we refer.



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made in halves

METALINE
(Trade Mark Reg.)
BUSHINGS for HOISTING SHEAVES
excel all other types for durability under heavy loads, and hard service.
OILLESS
THE METALINE COMPANY
Sole Manufacturers
6 West Ave. Long Island City, N. Y.

Saves Time on Light Excavating Work

Last week we called your attention to this same outfit at Washburn Bros. Co.'s plant at Jersey City, N. J., where it established a record of loading 2½ yd. wagons with sand and other bulk material in less than 1½ minutes.

Williams All Steel "A" Frame Portable Derrick

By fitting bucket with teeth it will enable you to realise large money savings on all light excavating work—such as digging for cellars, foundations, sewers, etc.

The derrick is readily moved from place to place under its own power. The bucket frequently picks up 60 per cent. in excess of its rated capacity. Our line includes steel "A" derricks, and buckets for every service. **Write for the free "BUCKET BOOK."**

The G. H. Williams Co., Cleveland, O.
New York Office - - - 30 Church Street

Williams "Favorite" Clam Shell Bucket

MEAD-MORRISON
MANUFACTURING COMPANY

Sturdy Efficient, Reliable Grabs

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"Excelsior" Bottom Dump Concrete Bucket (Patented)

Self-Dumping and Self-Righting Turnover Bucket

Controllable Bottom Dump Bucket (Patented)

Coal Hoisting, Mining, Excavating and Bottom Discharge Buckets—Steel Skips—Side and End Tip, Rotary Dump, Drop Bottom and Boiler Room Cars—Asphalt, Tar and Lead Melters, Hand Dump Carts, etc., etc.

Send for Catalogue.

"Invincible" Bottom Dump Bucket (Patented)

G. L. Stuebner, Iron Works

West 11th St., Long Island City
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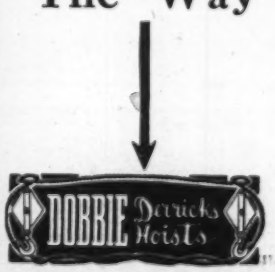
This is The Way



The way to reduce handling costs to a minimum is to use the equipment designed and built with that end in view—DOBBIE.

Found on every big public work for the past generation. Most wise contractors know them—do you?

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Wilmot Machy. Co., New Orleans, La.
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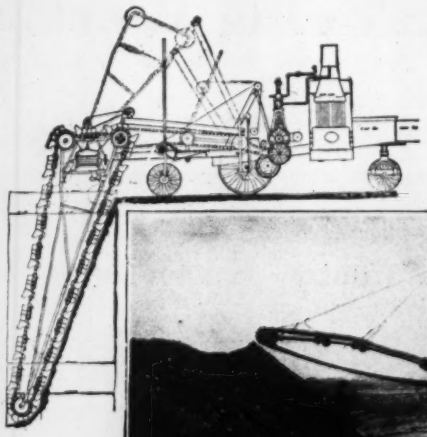
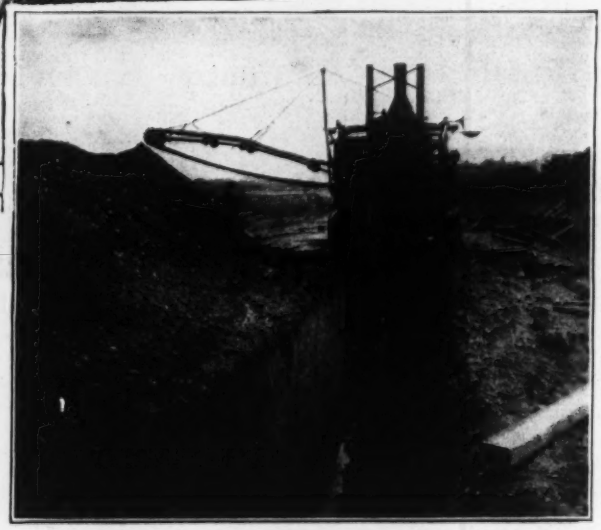




2 Men Can Dig a 20 ft. Deep Trench

You can realize an enormous saving in time and labor and earn large profits on all trench excavation contracts by using a **Parsons Trench Excavator** on the job.

Two men can actually do the work of fifty. Labor troubles and delays due to scarcity of men are **unknown** to the contractor who owns a **Parsons.**

Parsons Trench Excavators

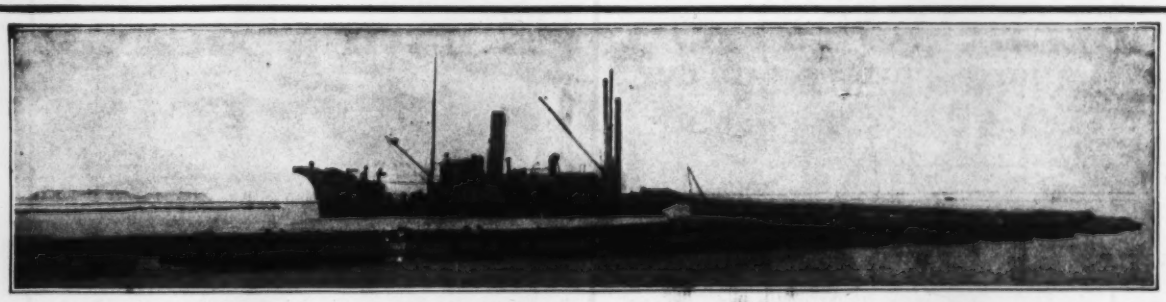
These modern machines are the final development of many years' experience in building and operating this class of machinery.

They are capable of digging and trench ranging between 28 and 78 inches in width with a depth down to 20 ft. with the **same** bucket equipment. The digger end of the excavator is so arranged that the buckets can easily be raised over any obstruction.

The Parsons is extra heavy in design and built of the finest quality steel. The buckets are self-cleaning and deposit the material on either or both sides of the trench. Operation is possible in a space 10 feet wide.

Why not investigate the remarkable time and money saving possibilities with the Parsons? Catalog mailed on request. **Write now.**

THE G. W. PARSONS COMPANY - - NEWTON, IOWA



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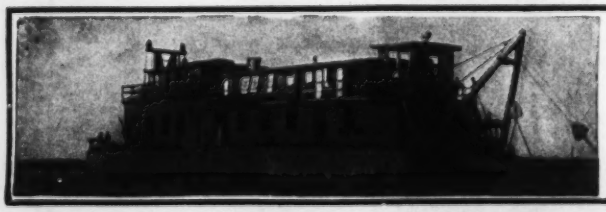

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made to meet just *your* requirements. We can increase your present output—we can save money for you. Let us tell you what we've done for others—let us show how we'll help you. **Write to us.**

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52 POUNDS COATING

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Made from high grade COPPER BEARING OPEN HEARTH STEEL—the material you should always specify. Carefully manufactured—fireproof—durable. Write for full information.
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THEW SHOVELS

FULL CIRCLE SWING — THEW — HORIZONTAL CROWDING MOTION — STEAM SHOVELS

1600 yards in 48 hours with cut ranging from 14 to 24 inches

Illustration shows a "Thew" Automatic Shovel finishing a grading job of 1600 cubic yards.

Excavation work lasted four days and eight hours, filling 803 two-yard wagons.

Shovel could easily have loaded 25 more wagons, in the same time, if they had been available. Cutting depth ranged from 14 inches to two feet.

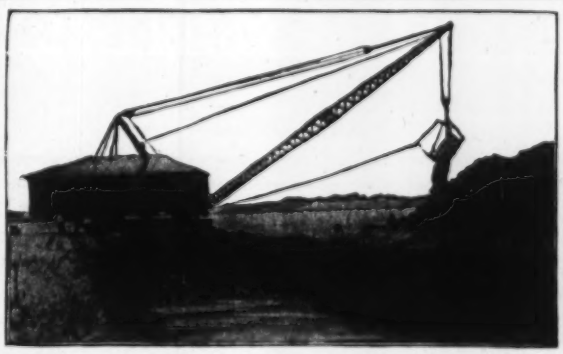
This remarkable capacity record in shallow cut work is due to the horizontal crowding motion found only on "Thew" Shovels.

The first "Thew" Shovel was built 15 years ago and is still giving efficient service. Today there are over 900 "Thew" Shovels at work for the largest contractors.

The "Thew" is a one man shovel equipment that is a paying proposition on any job requiring the removal of upwards of 100 cubic yards of material per day.

Operating cost and other valuable data contained in our catalog. Write for your copy.

The Thew Automatic Shovel Company, Lorain, Ohio



The Gasoline Power Drag Line Excavator

Look at that illustration. It looks like an ordinary steam power drag line excavator, doesn't it, except that it has no smoke stack?

That's the gasoline power Monighan Steel Drag Line Excavator, the *first* successful drag line excavator to be run by gasoline power.

Every contractor knows that in many excavating jobs, conditions have required such a machine as this—and here it is at last to fill that need.

For the ordinary run of excavating jobs there is, of course, the Monighan Line of steam power drag line Excavators which have yet to be beaten as getters of practical results.

Shall we send our complete descriptive catalog? It will interest you. *Write today.*

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any delay in the progress of your blasting operations if Keystone "Non-Freezing" Dynamite is used.

This is one of the 21 brands of

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—a typical "Keystone" product—manufactured to fill a real requirement.

You know the loss of time incurred and the danger involved in thawing explosives. Keystone Non-Freezing Dynamite makes all this unnecessary—it's a dependable powder ready when you are, no matter how low the temperature.

Secure the Keystone Booklet. It tells lots about interesting propositions such as this—we send it free.

Write to-day.

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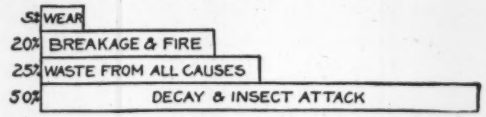
Timber Treatment Pays Dividends

This timber has an efficiency of 5%

According to Government figures the useful wear of the average pole (mine props particularly) amounts to just 5%. Here's the way they figure it.



By proper Coal Tar Creosote treatment, such as that used by the Republic Creosoting Co., the losses due to decay and insect attack are halved increasing the efficiency 25% of the total or 500%.
We have on hand at all times properly treated Ties, Paving Blocks, Poles, Mine Props, Dock and Bridge Timbers, etc.

Write us for authoritative bulletins showing savings possible for you.

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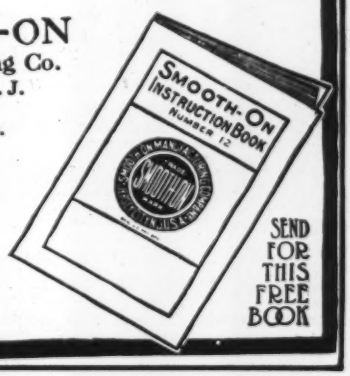

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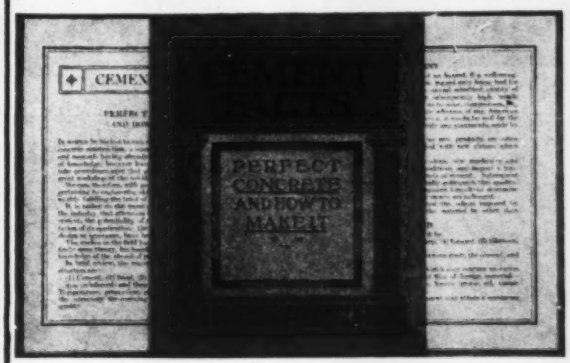

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For Permanent Retaining Walls, Dock Walls and Bulkheads

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Bay State Brick and Cement Coating

It does not destroy the distinctive texture of concrete and becomes a part of the material itself. It is specified and used by the largest architects, contractors and builders everywhere.

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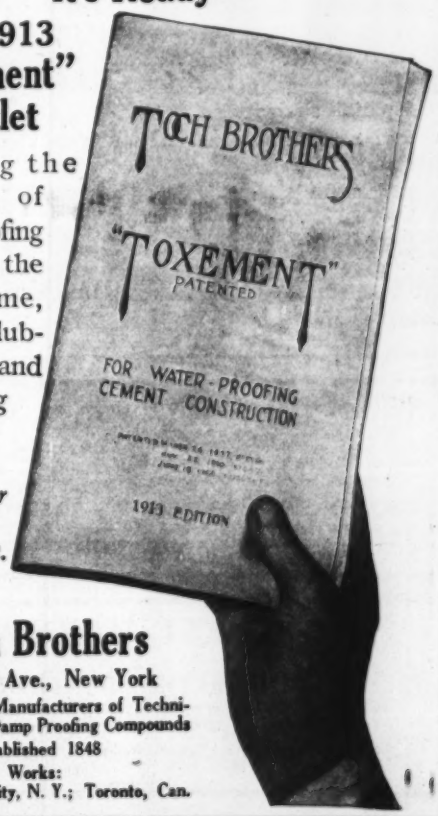

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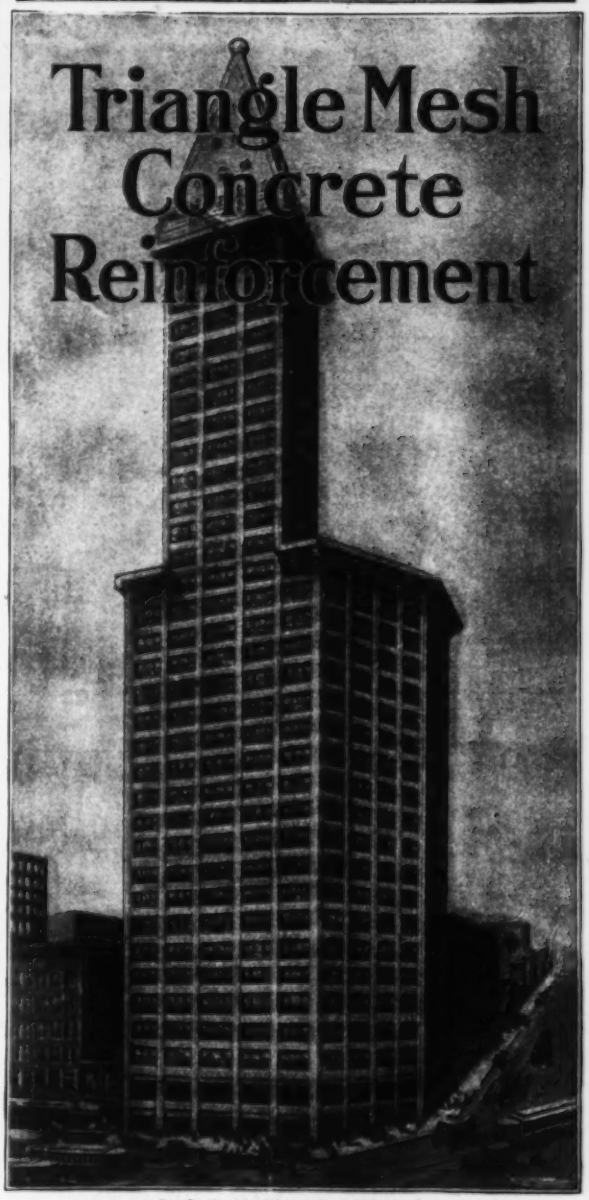

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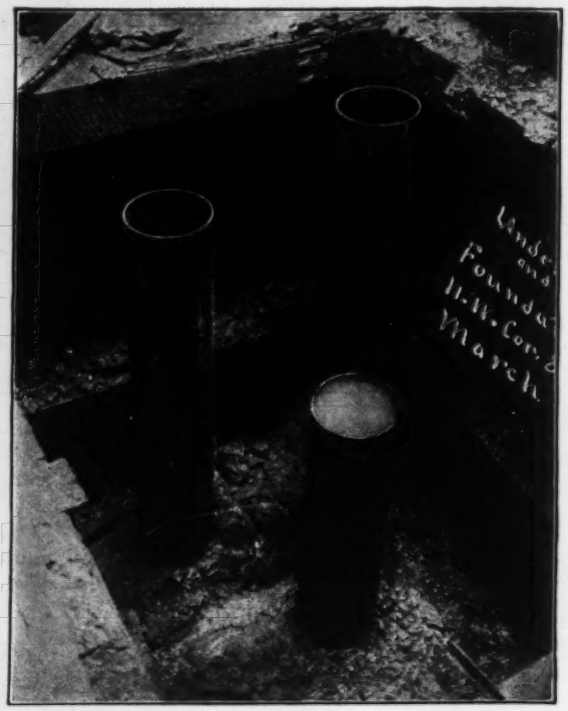

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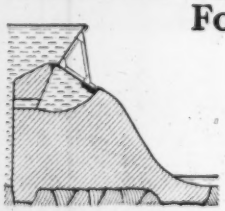

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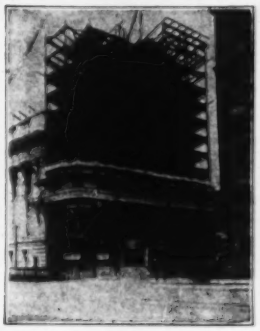
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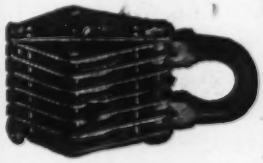
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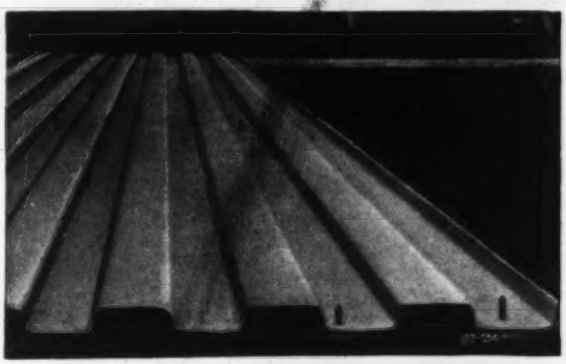

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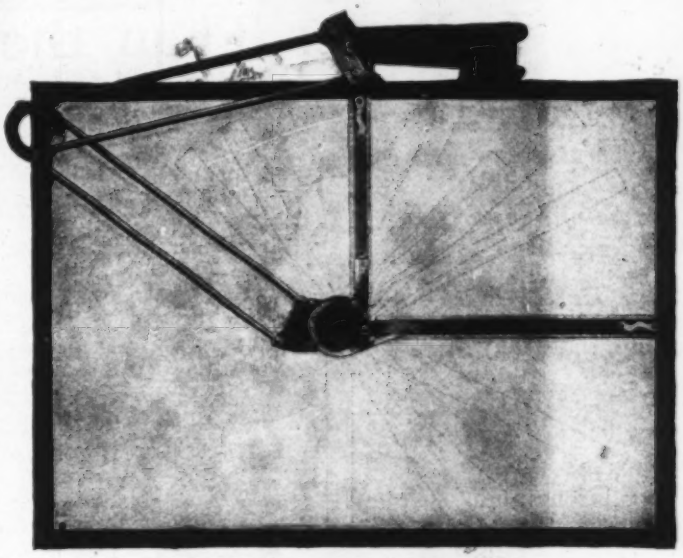

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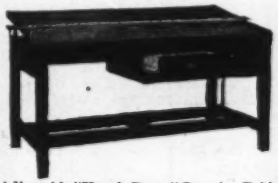

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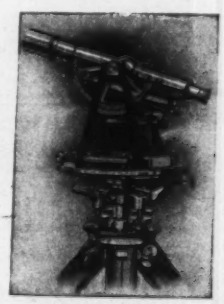

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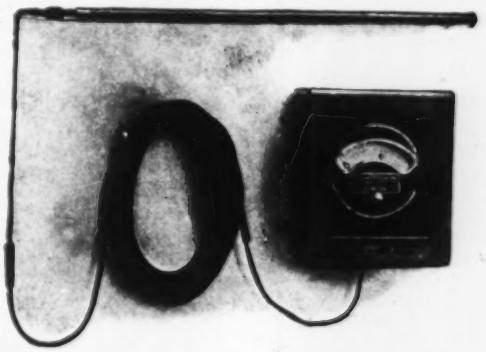

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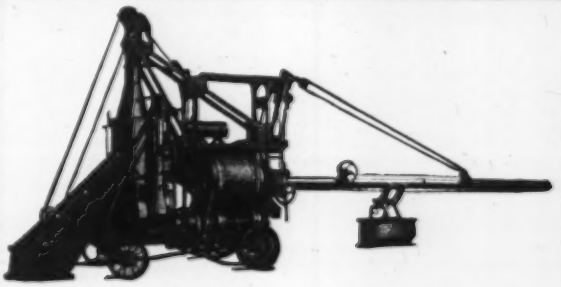

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Rockport Granite Co.

Piles, Concrete
Raymond Concrete Pile Co.
Underpinning & Foundation Co.

Pile Drivers
Browning Engineering Co., The
Contractors' Plant Mfg. Co.
Goubert, A. A.
Industrial Works
McKiernan-Terry Drill Co.
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Piling, Sheet Steel
Carnegie Steel Co.
Jones & Laughlin Steel Co.
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Wemlinger Steel Piling Co.

Piling, Wood
Berlin Mills Co.
Jennison-Wright Co., The

Pipe Coatings
Standard Asphalt & Rubber Co.

Pipe Covering
Johns-Manville Co., H. W.
Wyckoff & Sons, A.

Pipe Fittings
American Pipe & Construction Co.
Builders Iron Foundry
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Washington Pipe & Foundry Co.

Pipe, Iron
American Cast Iron Pipe Co.
Clow & Sons, Jas. B.
Donaldson Iron Co.
Drummond & Co., M. J.
Fox & Co., John
Glamorgan Pipe & Foundry Co.
Lynchburg Foundry Co.
Massillon Iron & Steel Co.
Standard Cast Iron Pipe Foundry Co.
United States Cast Iron Pipe & Foundry Co.
Utica Pipe Foundry Co.
Wood & Co., R. D.

Pipe Joint Compounds, (Pressure)
Leadite Co.

Pipe, Riveted Steel
Abendroth & Root Mfg. Co.
Carroll-Porter Boiler & Tank Co.
Des Moines Bridge & Iron Co.
Dover Boiler Works
Gillespie Co., The T. A.
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Pipe, Steel
Lennon Flume Co.
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Pipe, Wood
Michigan Pipe Co.
Pacific Coast Pipe Co.
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Plows
Western Wheeled Scraper Co.

Poles, Cross-arms, Etc. (Treated Wood)
Berlin Mills Co.
Jennison-Wright Co., The

Poles, Tubular Steel
American Bridge Co.
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Powder
Keystone National Powder Co.

Power Transmission Machinery
Bacon, Earle C.
Jeffrey Mfg. Co.
Jones & Laughlin Steel Co.
Leffel & Co., Jas.
Link-Belt Co.
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Pumps, Air
Buffalo Steam Pump Co.
Cameron Steam Pump Works, A. S.
Goulds Mfg. Co., The

Pumps, Air Lift
Ingersoll-Rand Co.

Pumps, Boiler Feed
Blake & Knowles Steam Pump Works
Buffalo Steam Pump Co.
Cameron Steam Pump Works, A. S.
De Laval Steam Turbine Co.
Goulds Mfg. Co., The
McGowan Co., John H.
National Transit Co.

Pumps, Centrifugal
Alberger Pump & Condenser Co.
American Well Works
Buffalo Steam Pump Co.
Cameron Steam Pump Works, A. S.
Darling Pump & Mfg. Co.
De Laval Steam Turbine Co.
Goulds Mfg. Co., The
Lawrence Machine Co.
McGowan Co., John H.
Morris Machine Works
Van Wie Pump Co.

Pumps, Contractors
Buffalo Steam Pump Co.
Cameron Steam Pump Works, A. S.
Edson Mfg. Co.
Goulds Mfg. Co., The
McGowan Co., John H.
National Transit Co.
Parker, A. A.
Pulsometer Steam Pump Co.
Van Wie Pump Co.

Pumps, Deep Well
American Well Works
Cameron Steam Pump Works, A. S.
Cook Well Co.
Deane Steam Pump Co.
Goulds Mfg. Co., The
National Transit Co.

Pumps, Diaphragm
Boston & Lockport Block Co.
Edson Mfg. Co.
Goulds Mfg. Co., The
Parker, A. A.

Pumps, Dredging
Lawrence Machine Co.
Morris Machine Works
Norbom Engineering Co.
Parker, A. A.
Van Wie Pump Co.

Pumps, Gasoline Portable
Edson Mfg. Co.
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Pumps, Mine
Cameron Steam Pump Works, A. S.
Deane Steam Pump Co.
Goulds Mfg. Co., The
McGowan Co., John H.
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Pulsometer Steam Pump Co.
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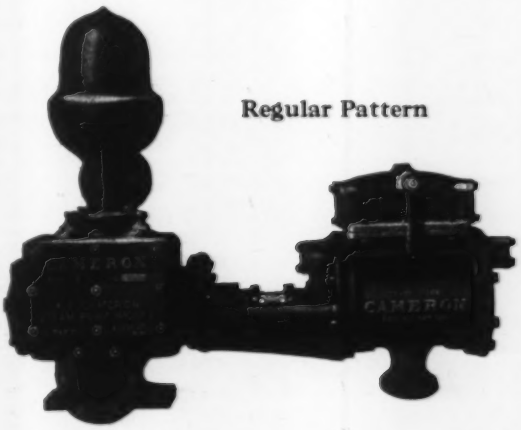

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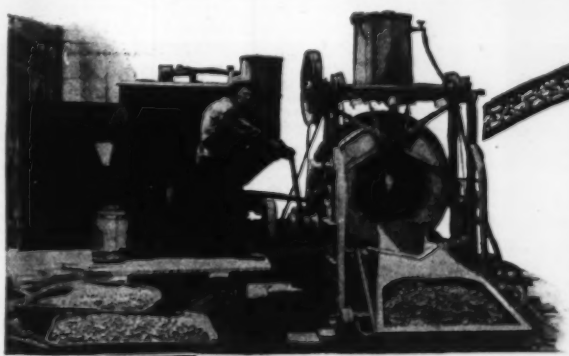

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Acme Road Mchry. Co.
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Schools and Colleges
See Alphabetical Index

Scrapers
Western Wheeled Scraper Co.

Screens, Rotary
Buchanan Co., C. G.
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Screens, Well
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Searchlights
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See Classified List Pages
Anderson-Auction Co.
Astoria Light, Heat & Power Co., The
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Brown Hoisting Machinery Co.

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Sprague & Henwood, Inc.

Testing Laboratories
See Alphabetical Index

Thermometers, Recording and Index
Bristol Co.

Ties, Steel
American Bridge Co.
Carnegie Steel Co.
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Berlin Mills Co.
Jennison-Wright Co., The

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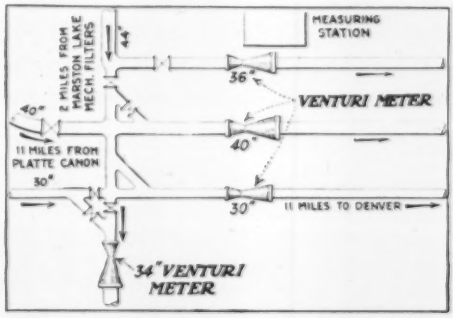
ALPHABETICAL INDEX TO ADVERTISERS

	Page
Abendroth & Root Mfg. Co.	20
Acme Road Mchry. Co.	46
Ainsworth & Sons, Wm.	66
Alberger Pump & Condenser Co.	17
Alpha Portland Cement Co.	12
Alsen's American Portland Cement Works	57
Ambursen Hydraulic Construction Co.	61
American Bridge Co. of New York	64
American Cast Iron Pipe Co.	23
American Creosote Works.	56
American Drafting Furniture Co.	67
American Gas Furnace Co.	20
American Locomotive Co.	47
American Pipe & Construction Co.	22
American Process Co.	56
American Sheet & Tin Plate Co.	54
American Steel & Wire Co.	59
American Well Works	17
Anderson-Auction Co.	39
Architects' & Engineers' Supply Co.	66
Asbestos Protected Metal Co.	65
Astoria Light, Heat & Power Co., The	39
Austin-Western Road Machinery Co., The	44
Babcock & Wilcox Co.	20
Bacon, Earl C.	46
Baldwin Locomotive Wks., The	47
Barber Asphalt Paving Co. (Philadelphia)	30
Bartlett & Snow Co., C. O.	20
Bergen & Lindeman	21
Berger & Sons, C. L.	66
Berger Mfg. Co., The	63, 48
Berlin Construction Co.	62
Berlin Mills Co.	56
Blaisdell Machinery Co.	28
Blake & Knowles Steam Pump Works	20
Blaw Steel Construction Co.	59, 63
Blickensderfer Mfg. Co.	27
Boston & Lockport Block Co.	63
Brandis & Sons Mfg. Co.	63
Bristol Co., The	75
Brown Hoisting Machry. Co.	52
Browning Engr. Co., The	50
Buchanan Co., C. G.	46
Buff & Buff Mfg. Co.	68
Buffalo Forge Co.	43
Buffalo Meter Co.	26
Buffalo Steam Roller Co.	44
Builders Iron Foundry,	3d cover
Burt Mfg. Co., The	79
Cameron Steam Pump Works, A. S.	77
Canadian Pacific Railway Co.	40
Carbolineum Wood Preserving Co.	45
Carnegie Steel Co.	58
Carroll-Porter Boiler & Tank Co., The	24
Carson Trench Mach. Co.	56
Carter Construction Co.	63
Chicago Bridge & Iron Works	24
Chicago Concrete Machinery Co.	77
Chicago Pneumatic Tool Co.	28
Chicago Steel Tape Co.	67
Classified List	38, 40
Clow & Sons, Jas. B.	23
Coldwell-Wilcox Co.	27
Consulting Engineers	69, 70, 71
Continental Fibre Co., The	21
Contractors' Plant Mfg. Co.	48
Cook Well Co., The	44
Coplay Cement Mfg. Co., The	57
Corrugated Bar Co.	4
Crocker-Wheeler Co.	20
Cyclone Drill Co., The	28
Darling Pump & Mfg. Co.	26
Davenport Locomotive Works	47
Davis, Wm. Russell	60
Deane Steam Pump Co., The	19
De Laval Steam Turbine Co.	18
Des Moines Bridge & Iron Co.	60
Detroit Graphite Co.	62
Detroit Steel Products Co.	61
Didier-March Co.	46
Directory of Consulting Engines	69, 70, 71
Dobbie Fdry. & Mach. Co.	53
Donaldson Iron Co.	22, 23
Dover Boiler Works	24
Drummond & Co., M. J.	22
Eastern Bridge & Structural Co.	62
Eddy Valve Co.	26
Edson Mfg. Co.	18
Ellicott Machine Co.	39
Elliott Co., B. K.	68
Flory Mfg. Co., S.	48
Foote Concrete Mchry. Co.	50
For Sale	39, 40
Fort Pitt Bridge Works	62
Fox & Co., John	22
French & Co., Samuel H.	5
Gamon Meter Co.	26
General Concrete Construction Co.	21
General Electric Co.	73
Gillespie Co., T. A., The	24
Glamorgan Pipe & Foundry	22, 23
Goubert, A. A.	52
Goulds Mfg. Co., The	19
Great Lakes Dredge & Dock Co.	40
Greene, Tweed & Co.	26
Gurley, W. & L. E.	66
Hanna Mfg. Co., The	68
Hardtmuth, L. & C.	67
Harrison Safety Boiler Works	20
Hartranft Cement Co., W. G.	57
Hayward Co., The	52
Heller & Brightly	68
Hinman Hydraulic Mfg. Co.	22
Hitner's Sons Co., H. A.	40
Hunt Co., Inc., C. W.	63
Improved Equipment Co.	20
Industrial Works	50
Ingersoll-Rand Co.	10
Inland Steel Co.	48
Insley Mfg. Co	75
Inspecting Engineers	71
International Creosoting & Construction Co.	56
Jeffrey Mfg. Co., The	48
Jennison-Wright Co., The	31
Johns-Manville Co., H. W.	21
Jones & Laughlin Steel Co.	65
Kenwood Bridge Co.	62
Keuffel & Esser Co.	66
Keystone National Powder Co.	55
Kinnear Mfg. Co., The	63
Koehring Machine Co.	75
Kolesch & Co.	68
Lackawanna Steel Co.	2d cover
Laclede Steel Co.	60
Lawrence Cement Co.	57
Lawrence Machine Co.	18
Leadite Co., Inc., The	22
Leffel & Co., James	18
Lehigh Portland Cement Co.	57
Lennon Flume Co.	24
Leopold & Co., J.	30
Lidgerwood Mfg. Co.	42
Lietz Co., The A.	66
Link-Belt Co.	41
Ludlow Valve Mfg. Co.	20
Lufkin Rule Co., The	67
Lynchburg Foundry Co.	23
MacKinnon, Holmes & Co.	62
Madison Fdry. Co., The	22
Main Belting Co.	49
Marion Malleable Iron Wks.	28
Massilon Iron & Steel Co.	23
McClintic-Marshall Co.	64
McConway & Torley Co.	46
McGowan Co., John H.	17
McGraw-Hill Book Co., Inc.	16
McKiernan-Terry Drill Co.	28
McMyler Interstate Co.	50
Mead-Morrison Mfg. Co.	53
Metaline Co., The	52
Michigan Pipe Co., The	24
Mietz, August	20
Milwaukee Bridge Co.	62
Minneapolis Steel & Machinery Co.	63
Missouri Valley Bridge & Iron Co.	62
Monighan Machine Co.	55
Morris Machine Works	19
Morse Chain Co.	49
Mount Vernon Bridge Co.	62
Mundy, J. S.	48
Municipal Engineering & Contracting Co.	14
National Brake & Electric Co.	28
National Corrugated Culvert Mfg. Co.	6
National Fire Proofing Co.	7
National Hoisting Engine Co.	48
National Meter Co.	26
National Transit Co.	18
National Tube Co.	8
Nazareth Cement Co.	57
Neuchatel Asphalt Co., The	30
N. Y. Continental Jewell Filtration Co.	27
Niagara Hydraulic Engine Co.	42
Norbom Engineering Co.	54
Norfolk Creosoting Co.	56
Norwalk Iron Works Co.	28
Norwood Engineering Co.	27
Ohio Locomotive Crane Co.	51
Otto Gas Engine Works	21
Oxweld Acetylene Co.	63
Pacific Coast Pipe Co.	25
Pacific Flush Tank Co.	19
Pacific Tank & Pipe Co.	25
Parker, A. A.	18
Parsons Co., The G. W.	54
Patterson Co., W. W.	62
Pease Co., The C. F.	66
Penn Bridge Co.	63
Pennsylvania Cement Co.	57
Pennsylvania Steel Co., The	64
Petroleum Iron Works, The	24
Phoenix Bridge Co., The	62
Pittsburgh Block & Mfg. Co.	63
Pittsburgh Meter Co.	26
Porter Co., H. K.	47
Portland Wood Pipe Co.	25
Power Specialty Co.	21
Proposals	33, 34, 35, 36
Pulsometer Steam Pump Co.	18
Rail Joint Co., The	46
Ramapo Iron Works	47
Ransome Concrete Machinery Co.	13
Raymond Concrete Pile Co.	3
Redwood Manufacturers Co.	25
Republic Creosoting Co.	56
Rinald Bros.	61
Riter-Conley Mfg. Co.	64
Riverside Bridge Co.	62
Robins Conveying Belt Co.	48
Rockport Granite Co.	60
Sandusky Portland Cement Co.	58
Schreiber & Sons Co., L.	62
Schools & Colleges	72
Second-Hand Material	39, 40, 41
Sessions Foundry Co.	22
Shoemaker & Co., Lewis F.	62
Sicilian Asphalt Paving Co.	30
Simplex Valve & Meter Co.	27
Situations Wanted	37, 38
Smidth & Co., F. L.	57
Smith Co., S. Morgan	18
Smith Co., The, T. L.	15, 44
Smooth-On Mfg. Co.	57
Southern Iron & Equipment Co.	40
Sprague & Henwood, Inc.	29
Standard American Dredging Co.	54
Standard Asphalt & Rubber Co.	30
Standard Cast Iron Pipe & Foundry Co.	23
Steel Protected Concrete Co.	30
Strauss Bascule Bridge Co.	63
Streeter Clip & Specialty Co., Inc.	63
Strobel Steel Cons. Co.	63
Struthers-Wells Co.	24
Stuebner Iron Works, G. L.	53
Sullivan Machinery Co.	29
Taylor-Wharton Iron & Steel Co.	21
Technical Supply Co.	11
Terry & Tench Co., Inc.	52
Testing Engineers	71
Thew Automatic Shovel Co.	55
Tippett & Wood	24
Toch Bros.	59
Trussed Concrete Steel Co.	5
Underpinning & Foundation Co., The	60
Union Iron Works	51
United States Cast Iron Pipe & Foundry Co.	22
United States Wood Preserving Co.	4th cover
Utica Pipe Foundry Co.	23
Universal Drafting Mach. Co.	67
Van Wie Pump Co.	18
Vulcan Iron Wks. (Wilkes-Barre)	46
Wadsworth-Howland & Co.	58
Want & For Sale Ads	37, 38
Warner-Reiss Sales Co.	26
Washington Pipe & Fdry. Co.	25
Watson Wagon Co.	42
Weber & Co., F.	66
Weber Chimney Co., The	21
Wemlinger Steel Piling Co.,	9
Western Wheeled Scraper Co.	41
Westinghouse Air Brake Co.	29
Wiley & Sons Inc., John	32
Williams, Brown & Earle	68
Williams Co. The G. H.	53
Wood & Co., R. D.	22, 23
Woodhouse Chain Works	28
Wyckoff & Son Co., A.	24
Wyckoff Pipe & Creos. Co.	56
Youngstown Iron & Steel Co., The	62
Zelnicker Supply Co., Walter A.	39

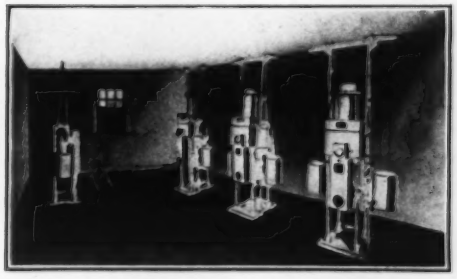
Venturi Engineering News No. 33

Denver's Modern Water Supply Has Six Venturi Meters

40-inch Venturi Meter Tube in course of erection.



Venturi Meters and Meter House at Wynetka, Colo.



Type D Venturi Register Recorders installed in the Wynetka Meter House.

Denver, Colorado, receives the greater portion of its water supply from Lake Cheseman, which is located about 40 miles away and is dammed to hold a continuous storage supply of 26 billion gallons.

The system includes a modern Slow Sand Filtration Plant occupying an area of nearly eleven acres at Platte Canon and one of smaller magnitude at Marston Lake. Wooden stave pipes are used throughout.

As early as 1892, the Denver Union Water Co., recognized the importance of obtaining an accurate measurement of the water supplied to the city and installed a 30-inch Venturi Meter for this purpose on their only main supply line. This meter is still in daily operation with unimpaired accuracy.

At various times there have since been added—one 34-inch, one 36-inch, one 40-inch, one 44-inch and one 48-inch Venturi Meter to meet the increased demands of the extended system. Each of these meter tubes is equipped with a Type D Register and Chart Recorder. These instruments register the total flow in millions of gallons and trace on a paper strip an indelible record of all variations in that flow during any hour of the day or night.

Venturi Meters have saved thousands of dollars on water works systems by detecting leaks and breakdowns as soon as they occur.

Venturi Meters will increase the efficiency of your plant. Consult us on any liquid or gas flow measurement. Suggestions and interesting Bulletin No. 75 mailed on request. Write us today.

Builders Iron Foundry, Providence, R. I.

BRANCH OFFICES:—38 Vesey Street, New York City. Northwestern Equipment Co., Alaska Building, Seattle, Wash. Northwestern Equipment Co., Railway Exchange, Portland, Ore. N. B. Livermore & Co., Merchants National Bank Building, San Francisco, Calif. The Rookery, Chicago, Ill. Land Title Building, Philadelphia, Penn.

Wood Block Pavement

Thirteen Years Without Repairs

The first creosoted wood block pavement in this country was laid in 1900 on Tremont Street, Boston. This street runs alongside the famous Boston Common, in the heart of the city. A recent traffic census shows 12,000 vehicles on it in ten consecutive hours.

Tremont Street, Boston, Mass. Paved with Wood Blocks.

In 1900 wood block pavements were a novelty in this country, although well and favorably known abroad. As a test it was decided to pave only one side of the street with wood blocks, the other side being asphalt of the highest grade.

The asphalt has worn out and been replaced. The original wood block pavement is still in perfect condition, as is shown by the above photograph taken in July, 1913.

Especially interesting is the fact that the wood block pavement has never been repaired, so that the maintenance expense has been nothing.

Wood block pavements are now being laid by the principal cities of the country, and everywhere they are demonstrating the fact that they give longer service at less cost than any other form of pavement known.

In addition, wood block pavements are clean, sanitary and quiet.

Further information and illustrated booklets on request.

U. S. WOOD PRESERVING COMPANY

165 Broadway, New York City